BEFORE THE OIL CONSERVATION DIVISION
NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

PETITION FOR HEARING BEFORE
A DIVISION EXAMINER REGARDING
DIRECTOR'S DECISION ON ABATEMENT
OF EAST BLINEBRY DRINKARD UNIT **CASE NO. 26126**

APACHE CORPORATION'S EXHIBITS
A-1 through D-1

EXHIBIT A-1

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Erin Taylor
Acting Cabinet Secretary

Ben Shelton
Deputy Cabinet Secretary

Albert C.S. Chang, Director
Oil Conservation Division

March 12, 2026

Apache Corporation
303 Veterans Airpark Ln
Midland, TX 79705

RE: Notification of Abatement for nDHR1922141227 East Blinebry Drinkard Unit #037, located in Unit letter E, Section 12, Township 21S, R37E

Dear Mr. Bole:

The New Mexico Oil Conservation Division (OCD) has reviewed Apache Corporation OGRID 873's (Apache) *Field Activity Report* submitted November 11, 2025, under application ID: 528526 for the East Blinebry Drinkard Unit (EBDU) #37, Incident ID# nDHR1922141227.

OCD has determined from the submitted report that groundwater has been impacted by Oil & Gas activity in excess of the standards outlined in 19.15.30.9 NMAC. Pursuant to 19.15.30 NMAC, OCD is requiring Apache to submit an abatement plan pursuant to 19.15.30.11 NMAC and Subsection A of 19.15.30.14 NMAC. Apache must submit a complete Stage 1 Abatement Plan proposal to OCD Permitting within 60 days of receipt of this letter. 19.15.30.13 A. NMAC. Apache may submit stage 1 and stage 2 abatement plan proposals together.

The public may view a copy of the *Field Activity Report* and the conditions online from OCD permitting under Incident ID# nDHR1922141227 at http://www.emnrd.state.nm.us/ocd/.

If Apache Corporation has any questions or concerns regarding this letter, please contact Brittany Hall at (505) 517-5333 or Brittany.Hall@emnrd.nm.gov.

Sincerely,

Rosa M Romero

Rosa Romero
Environmental Bureau Chief

Released to Imaging: 6/1/2026 4:16:59 PM

March 31, 2026

VIA EMAIL RosaM.Romero@emnrd.nm.gov

Ms. Rosa Romero
Environmental Bureau Chief
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Notification of Abatement for nDHR1922141227 East Blinebry Drinkard Unit #037, located in Unit letter E, Section 12, Township 21S, R 37E

Dear Ms. Romero:

Apache Corporation ("Apache") is in receipt of your March 12, 2026 letter regarding the above matter. Your letter states that OCD has determined from the submitted report that groundwater has been impacted by Oil & Gas activity in excess of the standards outlined in 19.15.30.9 NMAC and further purports to require Apache to submit an abatement plan pursuant to 19.15.30.11 NMAC and Subsection A of 19.15.30.14 NMAC. This is improper under the law and the facts of this case.

To begin, Apache cannot be required to submit an abatement plan under the applicable regulations. Subsection A of Section 19.15.30.11 NMAC states: "Unless otherwise provided by 19.15.30 NMAC *responsible persons* who are abating, or who are required to abate, water pollution in excess of the standards and requirements set for in 19.15.30.9 NMAC . . . ." (emphasis added) Subsection B states: "If the director determines that abatement of water pollution subject to Subsection A of 19.15.30.12 NMAC will not met [sic] the standards of Subsection B and C of 19.15.30.9 NMAC . . . the director may notify a *responsible person,* by certified mail, to submit an abatement plan pursuant to 19.15.30.11 NMAC and Subsection A of 19.15.30.14 NMAC." (emphasis added). Section 19.15.30.14 NMAC similarly refers to a *responsible person* as the person who is subject to the requirements of that section.

The term *responsible person* is defined in section 19.15.2.7.R(6) as "the owner or operator who shall complete a division-approved correction action for pollution from releases." *Owner* is defined as "the person who has the right to drill into and to produce from a pool, and to appropriate the production either for the person or for the person and another." *Operator* means "a person who, duly authorized, manages a lease's development or a producing property's operation, or who manages a facility's operation."

Apache is neither an *owner* nor an *operator,* as those terms are defined above. Consequently, Apache is not a *responsible person* and, therefore, is not subject to the provisions of 19.15.30

NMAC. Indeed, Apache does not even have an ongoing right of access to the subject property, which would of course be necessary to prepare, submit, and implement an abatement plan.

In addition, your letter references an incident at the East Blinebry Drinkard Unit #037 before then purporting to require an abatement plan. However, your letter states only that OCD has determined from the submitted report that "groundwater has been impacted by *Oil & Gas activity* in excess of the standards outlined in 19.15.30.9 NMAC." This determination does not—and could not—identify the East Blinebry Drinkard Unit #037 incident as the cause of the alleged groundwater impacts. Indeed, your letter is wholly silent as to what *Oil and Gas activity* is alleged as the source of the alleged groundwater impacts. Consequently, there is an insufficient factual basis to require Apache to complete an abatement plan *even if* Apache were an *owner* or an *operator* under the applicable regulations, which it is not. As you know, the *Field Activity Report* dated November 11, 2025 identifies likely sources not associated with the incident cited in your March 12 letter as the likely cause of any groundwater impacts.

Based on the foregoing Apache respectfully requests that OCD withdraw its letter dated March 12, 2026. Apache reserves all rights with respect to your March 12, 2026 letter and any other related actions.

I would appreciate your response before April 10, 2026, as Apache intends to request a hearing on this matter if your letter is not withdrawn.

Respectfully,

Barrett W. Bole

Barrett W. Bole
Apache Corporation

Cc: Brittany Hall, Brittany.Hall@emnrd.nm.gov

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form C-145
Revised May 19, 2017

Permit 379472

Change of Operator

Previous Operator Information

OGRID: 873
Name: APACHE CORPORATION
Address: 303 Veterans Airpark Ln
#1000
City, State, Zip: Midland, TX 79705

New Operator Information

Effective Date: Effective on the date of approval by the OCD
OGRID: 372171
Name: HILCORP ENERGY COMPANY
Address: 1111 Travis Street
City, State, Zip: Houston, TX 77002

I hereby certify that the rules of the Oil Conservation Division ("OCD") have been complied with and that the information on this form and the certified list of wells is true to the best of my knowledge and belief.

Additionally, by signing below, HILCORP ENERGY COMPANY certifies that it has read and understands the following synopsis of applicable rules.

PREVIOUS OPERATOR certifies that all below-grade tanks constructed and installed prior to June 16, 2008 associated with the selected wells being transferred are either (1) in compliance with 19.15.17 NMAC, (2) have been closed pursuant to 19.15.17.13 NMAC or (3) have been retrofitted to comply with Paragraphs 1 through 4 of 19.15.17.11(I) NMAC.

HILCORP ENERGY COMPANY understands that the OCD's approval of this operator change:

1. constitutes approval of the transfer of the permit for any permitted pit, below-grade tank or closed-loop system associated with the selected wells; and
2. constitutes approval of the transfer of any below-grade tanks constructed and installed prior to June 16, 2008 associated with the selected wells, regardless of whether the transferor has disclosed the existence of those below-grade tanks to the transferee or to the OCD, and regardless of whether the below-grade tanks are in compliance with 19.15.17 NMAC.

As the operator of record of wells in New Mexico, HILCORP ENERGY COMPANY agrees to the following statements:

1. Initials VA I am responsible for ensuring that the wells and related facilities comply with applicable statutes and rules, and am responsible for all regulatory filings with the OCD. I am responsible for knowing all applicable statutes and rules, not just the rules referenced in this list. I understand that the OCD's rules are available on the OCD website under "Rules," and that the Water Quality Control Commission rules are available on the OCD website on the "Publications" page.
2. Initials VA I understand that if I acquire wells from another operator, the OCD must approve the operator change before I begin operating those wells. See Subsection B of 19.15.9.9 NMAC. I understand that if I acquire wells or facilities subject to a compliance order addressing inactive wells or environmental cleanup, before the OCD will approve the operator change it may require me to enter into an enforceable agreement to return those wells to compliance. See Paragraph (2) of Subsection C of 19.15.9.9 NMAC.
3. Initials VA I must file a monthly C-115 report showing production for each non-plugged well completion for which the OCD has approved an allowable and authorization to transport, and injection for each injection well. See 19.15.7.24 NMAC. I understand that the OCD may cancel my authority to transport from or inject into all the wells I operate if I fail to file C-115 reports. See Subsection C of 19.15.7.24 NMAC.
4. Initials VA I understand that New Mexico requires wells that have been inactive for certain time periods to be plugged or placed in approved temporary abandonment. See 19.15.25.8 NMAC. I understand the requirements for plugging and approved temporary abandonment in 19.15.25 NMAC. I understand that I can check my compliance with the basic requirements of 19.15.25.8 NMAC by using the "Inactive Well List" on OCD's website.
5. Initials VA I must keep current with financial assurances for well plugging. I understand that New Mexico requires each state or fee well that has been inactive for more than two years and has not been plugged and released to be covered by a single-well financial assurance or a "blanket plugging financial assurance for wells in temporarily abandoned statues", even if the well is also covered by a blanket financial assurance and even if the well is on approved temporary abandonment status. See Subsection C of 19.15.8.9 NMAC. I understand that I can check my compliance with the financial assurance requirement by using the "Inactive Well Additional Financial Assurance Report" on the OCD's website.
6. Initials VA I am responsible for reporting and remediating releases pursuant to 19.15.29 NMAC. I understand the OCD will look to me as the operator of record to take corrective action for releases at my wells and related facilities, including releases that occurred before I became operator of record. I am responsible for conducting my own due diligence for any releases that have occurred prior to becoming operator of my wells and related facilities and am responsible for any open releases or unreported releases.
7. Initials VA I have read 19.15.5.9 NMAC, commonly known as "Part 5.9," and understand that to be in compliance with its requirements I must have the appropriate financial assurances in place, comply with orders requiring corrective action, pay penalties assessed by the courts or agreed to by me in a settlement agreement, and not have too many wells out of compliance with the inactive well rule (19.15.25.8 NMAC). If I am in violation of Part 5.9, I may not be allowed to drill, acquire or produce any additional wells, and will not be able to obtain any new injection permits. See 19.15.16.19 NMAC, 19.15.26.8 NMAC, 19.15.9.9 NMAC and 19.15.14.10 NMAC. If I am in violation of Part 5.9 the OCD may, after notice and hearing, revoke my existing injection permits and seek other relief. See 19.15.26.8 NMAC and 19.15.5.10 NMAC.
8. Initials VA For injection wells, I understand that I must report injection on my monthly C-115 report and must operate my wells in compliance with 19.15.26 NMAC and the terms of my injection permit. I understand that I must conduct mechanical integrity tests on my injection wells at least once every five years. See 19.15.26.11 NMAC. I understand that when there is a continuous one-year period of non-injection into all wells in an injection or storage project or into a saltwater disposal well or special purpose injection well, authority for that injection automatically terminates. See 19.15.26.12 NMAC. I understand that if I transfer operation of an injection well to another operator, the OCD must approve the transfer of authority to inject, and the OCD may require me to demonstrate the well's mechanical integrity prior to approving that transfer. See 19.15.26.15 NMAC.
9. Initials VA I am responsible for providing the OCD with my current address of record and emergency contact information, and I am responsible for updating that information when it changes. See Subsection C of 19.15.9.8 NMAC. I understand that I can update that information on the OCD's website under "Electronic Permitting."
10. Initials VA If I transfer well operations to another operator, the OCD must approve the change before the new operator can begin operations. See Subsection B of 19.15.9.9 NMAC. I remain responsible for the wells and related facilities and all related regulatory filings until the OCD approves the operator change. I understand that the transfer will not relieve me of responsibility or liability for any act or omission which occurred while I operated the wells and related facilities.
11. Initials VA No person with an interest exceeding 25% in the undersigned company is, or was within the last 5 years, an officer, director, partner or person with a 25% or greater interest in another entity that is not currently in compliance with Subsection A of 19.15.5.9 NMAC.
12. Initials VA NMOCD Rule Subsection E and F of 19.15.16.8 NMAC: An operator shall have 90 days from the effective date of an operator name change to change the operator name on the well sign unless the division grants an extension time, for good cause shown, along with a schedule for making the changes. Each sign shall show the (1) well number, (2) property name, (3) operator's name, (4) location by footage, quarter-quarter section, township and range (or unit letter can be substituted for the quarter-quarter section), and (5) API number.

I hereby certify I understand the above. The statements I have made are true and correct and a condition precedent to the Oil Conservation Division accepting this Change of Operator.

Previous Operator		New Operator	
Signature:	Date: July 10, 2025 Electronic Signature(s): Rob Jackson, District 2	Signature:	
Printed Name:	NMOCD Approval NATE ZEIGLER	Printed Name:	VICKI TYLER
Title:	ATTORNEY IN FACT	Title:	Production Analyst
Date:	1/14/2025 Phone: 432-818-1844	Date:	12/31/24 Phone: 3466837283

Permit 379472

Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No.

6. If Indian, Allottee or Tribe Name

7. If Unit of CA/Agreement, Name and/or No.
See attached

1. Type of Well
☐ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
See attached

2. Name of Operator
Hilcorp Energy Company

9. API Well No.
See attached

3a. Address 1111 Travis Street, Houston, TX 77002

3b. Phone No. *(include area code)*
(713) 209-2400

10. Field and Pool or Exploratory Area

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
See attached

11. Country or Parish, State

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☑ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☑ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change of Operator
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

Hilcorp Energy Company hereby assumes operatorship effective January 1, 2025. Bond coverage pursuant to 43CFR3104.0 and 43CFR3104.3 for lease activities is being provided by Hilcorp Energy Company with its BLM bond #NMB001486. Hilcorp Energy Company hereby certifies that it is responsible under the terms and conditions of the lease for the operations conducted on the leased lands or portion thereof.

Bond Coverage: BLM Bond File No.: NMB001486

Change of Operator Effective: 01/01/2025

Former Operator: Apache Corporation

See Conditions of Approval

Timothy R. Custer
Senior Vice President - Land

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*
Spencer Kerr

Title Senior Vice President

Signature

Date 12/17/2024

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by JENNIFER SANCHEZ
Digitally signed by JENNIFER SANCHEZ
Date: 2025.02.13 10:47:35 -07'00'

Title Petroleum Engineer

Date 02/13/2025

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office RFO

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001500710	APD	96AIR1215ACBF	AAO FEDERAL	13	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001532307	APD	02JA0330ACBF	AAO FEDERAL	1	APACHE CORPORATION	NMLC062412	POW
Carlsbad	3001532309	APD	02JA0334ACBF	AAO FEDERAL	3	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001532310	APD	02JA0336ACBF	AAO FEDERAL	4	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001533473	APD	04LA0361AECBF	AAO FEDERAL	7	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001533784	APD	05AL0013ACBF	AAO FEDERAL	8	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001534071	APD	05LA0049AECBF	AAO FEDERAL	6	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001534387	APD	05LA0671ACBF	AAO FEDERAL	9	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001534555	APD	06BH0136ACBF	AAO FEDERAL	11	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001534576	APD	06LA0796ACBF	AAO FEDERAL	10	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001534998	APD	06BH0138ACBF	AAO FEDERAL	12	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542024	APD	13KMS5634AECBF	AAO FEDERAL	14	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542025	APD	13KMS5632AECBF	AAO FEDERAL	15	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542026	APD	13KMS5631AECBF	AAO FEDERAL	16	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542027	APD	13KMS5633AECBF	AAO FEDERAL	17	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542035	APD	13KMS5638AECBF	AAO FEDERAL	18	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542036	APD	13KMS5646AECBF	AAO FEDERAL	20	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542051	APD	13KMS5643AECBF	AAO FEDERAL	19	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542334	APD	13KMS5645AECBF	AAO FEDERAL	21	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542335	APD	13KMS5640AECBF	AAO FEDERAL	22	APACHE CORPORATION	NMLC062412	POW
Carlsbad	3001542336	APD	13KMS5635AECBF	AAO FEDERAL	23	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542337	APD	13KMS5647AECBF	AAO FEDERAL	24	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542338	APD	13KMS5639AECBF	AAO FEDERAL	26	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542339	APD	13KMS5637AECBF	AAO FEDERAL	29	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542358	APD	14DLM2286ACBF	AAO FEDERAL	28	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542359	APD	13KMS5642AECBF	AAO FEDERAL	27	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542360	APD	13KMS5644AECBF	AAO FEDERAL	30	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542361	APD	13KMS5636AECBF	AAO FEDERAL	25	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001542549	APD	14KMS8180ACBF	AAO FEDERAL SWD	1	APACHE CORPORATION	NMNM0557371	WDW
Carlsbad	3001530210	APD	98JA0534ACBF	B 440 FEDERAL	2	APACHE CORPORATION	NMLC028775A	POW
Carlsbad	3001530393	APD	98LA0331ACBF	B 440 FEDERAL	1	APACHE CORPORATION	NMLC028775A	POW
Carlsbad	3001530429	APD	99JA0946ACBF	B 440 FEDERAL	3	APACHE CORPORATION	NMLC028775A	POW
Carlsbad	3001530477	APD	99LA0492ACBF	B 440 FEDERAL	4	APACHE CORPORATION	NMLC028775A	POW
Carlsbad	3001530739	APD	99MO0044ACBF	B 440 FEDERAL	6	APACHE CORPORATION	NMLC028775A	POW
Carlsbad	3001530755	APD	99LA0912ACBF	B 440 FEDERAL	5	APACHE CORPORATION	NMLC028775A	POW
Carlsbad	3001541524	APD	13DLM1865ACBF	B 440 FEDERAL	8	APACHE CORPORATION	NMLC028775A	POW
Carlsbad	3002506022	NON	FE96AIR0039AHO	BARBER GAS COM	1	APACHE CORPORATION	FEE	PGW
Carlsbad	3002506029	NON	FE96AIR0042AHO	BARBER GAS COM	4	APACHE CORPORATION	FEE	PGW
Carlsbad	3001529147	APD	96AIR2071ACBF	BARNSDALL FEDERAL	2	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001529148	APD	96AIR2072ACBF	BARNSDALL FEDERAL	3	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001529339	APD	98LD0075ACBF	BARNSDALL FEDERAL	5	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001529342	APD	98LD0077ACBF	BARNSDALL FEDERAL	8	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001529973	APD	98EI0847ACBF	BARNSDALL FEDERAL	10	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001530142	APD	98EI0875ACBF	BARNSDALL FEDERAL	4	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001530209	APD	98JA0530ACBF	BARNSDALL FEDERAL	13	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001530391	APD	98LA0335ACBF	BARNSDALL FEDERAL	9	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001530392	APD	98LA0337ACBF	BARNSDALL FEDERAL	11	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001537643	APD	10CMR0201ACBF	BARNSDALL FEDERAL	18	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001537681	APD	10CMR0203ACBF	BARNSDALL FEDERAL	17	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001541245	APD	12KMS3097ACBF	BARNSDALL FEDERAL	16	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001541406	APD	13KMS5473ACBF	BARNSDALL FEDERAL	21	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001542364	APD	14KMS7950ACBF	BARNSDALL FEDERAL	20	APACHE CORPORATION	NMLC028775B	POW
Carlsbad	3001530231	APD	98JA0598ACBF	BIRDIE FEDERAL	3	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001530235	APD	98JA0598ACBF	BIRDIE FEDERAL	4	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001530237	APD	98JA0594ACBF	BIRDIE FEDERAL	2	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001530371	APD	98LA0195ACBF	BIRDIE FEDERAL	5	APACHE CORPORATION	NMNM074936	POW
Carlsbad	3001530520	APD	99LA0466ACBF	BIRDIE FEDERAL	6	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001531330	APD	99LA0984ACBF	BIRDIE FEDERAL	1	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001536158	APD	08DLM0126ACBF	BIRDIE FEDERAL	9	APACHE CORPORATION	NMNM074936	POW
Carlsbad	3001536161	APD	08DLM0130ACBF	BIRDIE FEDERAL	12	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001536371	APD	08TLC0314ACBF	BIRDIE FEDERAL	10	APACHE CORPORATION	NMNM074936	POW
Carlsbad	3001536414	APD	08CMR0262ACBF	BIRDIE FEDERAL	8	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001536441	APD	08CMR0266ACBF	BIRDIE FEDERAL	11	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001536576	APD	08CMR0345ACBF	BIRDIE FEDERAL	16	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001536760	APD	08TLC0395ACBF	BIRDIE FEDERAL	15	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001537162	APD	09DLM0217ACBF	BIRDIE FEDERAL	7	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3001539221	APD	11DLM0317ACBF	BIRDIE FEDERAL	17	APACHE CORPORATION	NMNM074936	POW
Carlsbad	3001541244	APD	12KMS3099ACBF	BIRDIE FEDERAL	18	APACHE CORPORATION	NMNM86025	POW
Carlsbad	3002510891	APD	96AIR5046AHOF	BLINEBRY	2	APACHE CORPORATION	NMLC060825A	PGW
Carlsbad	3002510898	APD	96AIR5047AHOF	BLINEBRY	7	APACHE CORPORATION	NMLC060825A	PGW
Carlsbad	3001534126	APD	05AL0135AECBF	CEDAR LAKE FEDERAL CA	901	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001536440	APD	08DLM0403ACBF	CEDAR LAKE FEDERAL CA	501	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537137	APD	09BH0129ACBF	CEDAR LAKE FEDERAL CA	801	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537354	APD	09DLM0368ACBF	CEDAR LAKE FEDERAL CA	802	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537355	APD	09DLM0392ACBF	CEDAR LAKE FEDERAL CA	807	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537357	APD	09DLM0370ACBF	CEDAR LAKE FEDERAL CA	803	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537358	APD	09DLM0390ACBF	CEDAR LAKE FEDERAL CA	809	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537359	APD	09DLM0406ACBF	CEDAR LAKE FEDERAL CA	813	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537360	APD	09KLH0021ACBF	CEDAR LAKE FEDERAL CA	814	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001537361	APD	09DLM0372ACBF	CEDAR LAKE FEDERAL CA	806	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001539222	APD	11DLM0323ACBF	CEDAR LAKE FEDERAL CA	815	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540462	APD	12KMS1519AECBF	CEDAR LAKE FEDERAL CA	826H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540465	APD	12DLM0888AECBF	CEDAR LAKE FEDERAL CA	701	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001540466	APD	12KMS1524AECBF	CEDAR LAKE FEDERAL CA	810H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001540468	APD	12KMS1522AECBF	CEDAR LAKE FEDERAL CA	812H	APACHE CORPORATION	NMLC029435A	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001540470	APD	12KMS1525AECBF	CEDAR LAKE FEDERAL CA	827H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540549	APD	12DLM0887AECBF	CEDAR LAKE FEDERAL CA	614	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540550	APD	12DLM0886AECBF	CEDAR LAKE FEDERAL CA	515	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540551	APD	12DLM0891AECBF	CEDAR LAKE FEDERAL CA	516	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540574	APD	12KMS1521AECBF	CEDAR LAKE FEDERAL CA	110H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001540575	APD	12KMS1528AECBF	CEDAR LAKE FEDERAL CA	111H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001540577	APD	12KMS1526AECBF	CEDAR LAKE FEDERAL CA	113H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001540578	APD	12KMS1530AECBF	CEDAR LAKE FEDERAL CA	114H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001540579	APD	12KMS1527AECBF	CEDAR LAKE FEDERAL CA	115H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001540901	APD	12DLM1298ACBF	CEDAR LAKE FEDERAL CA	737H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540902	APD	12DLM1302ACBF	CEDAR LAKE FEDERAL CA	738H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540913	APD	12KMS2611ACBF	CEDAR LAKE FEDERAL CA	716H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001540914	APD	12KMS2613ACBF	CEDAR LAKE FEDERAL CA	717H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001540916	APD	12KMS2014AECBF	CEDAR LAKE FEDERAL CA	719H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540917	APD	12KMS2018AECBF	CEDAR LAKE FEDERAL CA	720H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001540918	APD	12KMS2629ACBF	CEDAR LAKE FEDERAL CA	721H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001540990	APD	12KMS2771AECBF	CEDAR LAKE FEDERAL CA	916H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001540991	APD	12KMS2772AECBF	CEDAR LAKE FEDERAL CA	917H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001540992	APD	12KMS2773AECBF	CEDAR LAKE FEDERAL CA	918H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001541166	APD	12KMS2776AECBF	CEDAR LAKE FEDERAL CA	922H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001541167	APD	12KMS2775AECBF	CEDAR LAKE FEDERAL CA	923H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001541168	APD	12KMS2774AECBF	CEDAR LAKE FEDERAL CA	924H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001541909	APD	13KMS6274AECBF	CEDAR LAKE FEDERAL CA	119H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001541910	APD	13KMS6273AECBF	CEDAR LAKE FEDERAL CA	120H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001541942	APD	13KMS7408ACBF	CEDAR LAKE FEDERAL CA	126H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001541944	APD	13KMS6279AECBF	CEDAR LAKE FEDERAL CA	125H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542139	APD	14DLM2091ACBF	CEDAR LAKE FEDERAL CA	334H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542140	APD	14DLM2094ACBF	CEDAR LAKE FEDERAL CA	335H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542141	APD	14DLM2096ACBF	CEDAR LAKE FEDERAL CA	336H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542142	APD	14DLM2098ACBF	CEDAR LAKE FEDERAL CA	337H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542585	APD	14KMS8140ACBF	CEDAR LAKE FEDERAL CA	629H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542587	APD	14KMS8146ACBF	CEDAR LAKE FEDERAL CA	635H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542653	APD	14KMS8138ACBF	CEDAR LAKE FEDERAL CA	628H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542654	APD	14KMS8144ACBF	CEDAR LAKE FEDERAL CA	634H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542744	APD	14DLM2468ACBF	CEDAR LAKE FEDERAL CA	342H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542745	APD	14DLM2470ACBF	CEDAR LAKE FEDERAL CA	343H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542762	APD	14DLM2464ACBF	CEDAR LAKE FEDERAL CA	340H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542763	APD	14DLM2466ACBF	CEDAR LAKE FEDERAL CA	341H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001542900	APD	14CQ0573ACBF	CEDAR LAKE FEDERAL CA	640H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542901	APD	14CQ0575ACBF	CEDAR LAKE FEDERAL CA	641H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542902	APD	14CQ0577ACBF	CEDAR LAKE FEDERAL CA	642H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542903	APD	14CQ0579ACBF	CEDAR LAKE FEDERAL CA	643H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542907	APD	14CQ0551ACBF	CEDAR LAKE FEDERAL CA	652H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542908	APD	14CQ0563ACBF	CEDAR LAKE FEDERAL CA	653H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542909	APD	14CQ0565ACBF	CEDAR LAKE FEDERAL CA	654H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001542910	APD	14CQ0567ACBF	CEDAR LAKE FEDERAL CA	655H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543088	APD	14CQ0599ACBF	CEDAR LAKE FEDERAL CA	858H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543248	APD	15DLM0239ACBF	CEDAR LAKE FEDERAL CA	859H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543249	APD	15DLM0241ACBF	CEDAR LAKE FEDERAL CA	860H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543250	APD	15DLM0243ACBF	CEDAR LAKE FEDERAL CA	861H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543326	APD	15DLM0254ACBF	CEDAR LAKE FEDERAL CA	950H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001543327	APD	15DLM0256ACBF	CEDAR LAKE FEDERAL CA	951H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001543361	APD	15ASB0091ACBF	CEDAR LAKE FEDERAL CA	722H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001543362	APD	15ASB0093ACBF	CEDAR LAKE FEDERAL CA	723H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001543363	APD	15ASB0095ACBF	CEDAR LAKE FEDERAL CA	724H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001543409	APD	15TCB0223ACBF	CEDAR LAKE FEDERAL CA	148H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001543442	APD	15DLM0157AECBF	CEDAR LAKE FEDERAL CA	648H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543443	APD	15DLM0155AECBF	CEDAR LAKE FEDERAL CA	646H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543507	APD	15ASB0131ACBF	CEDAR LAKE FEDERAL CA	547H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543508	APD	15ASB0133ACBF	CEDAR LAKE FEDERAL CA	549H	APACHE CORPORATION	NMLC029435B	POW
Carlsbad	3001543520	APD	15DLM0450ACBF	CEDAR LAKE FEDERAL CA	409H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001543521	APD	15TCB0334ACBF	CEDAR LAKE FEDERAL CA	410H	APACHE CORPORATION	NMLC029426A	POW
Carlsbad	3001543522	APD	15TCB0336ACBF	CEDAR LAKE FEDERAL CA	411H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001543523	APD	15DLM0452ACBF	CEDAR LAKE FEDERAL CA	412H	APACHE CORPORATION	NMLC029426A	POW
Carlsbad	3001543557	APD	15TCB0310ACBF	CEDAR LAKE FEDERAL CA	304H	APACHE CORPORATION	NMLC029426A	POW
Carlsbad	3001543559	APD	15TCB0312ACBF	CEDAR LAKE FEDERAL CA	303H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001543560	APD	15JLR0138ACBF	CEDAR LAKE FEDERAL CA	302H	APACHE CORPORATION	NMLC029426A	POW
Carlsbad	3001543561	APD	15TCB0316ACBF	CEDAR LAKE FEDERAL CA	301H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001544398	APD	10400002070	CEDAR LAKE FEDERAL CA	762H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001544399	APD	10400005377	CEDAR LAKE FEDERAL CA	725H	APACHE CORPORATION	NMLC029435A	POW
Carlsbad	3001544982	APD	10400025082	CEDAR LAKE FEDERAL CA	953H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3001545029	APD	10400025084	CEDAR LAKE FEDERAL CA	954H	APACHE CORPORATION	NMLC029426B	POW
Carlsbad	3002526126	APD	96AIR4901AHOF	CJ SAUNDER	3	APACHE CORPORATION	NMLC046295	PGW
Carlsbad	3002532692	APD	96AIR4903AHOF	CJ SAUNDER	4	APACHE CORPORATION	NMLC046295	PGW
Carlsbad	3001531058	APD	00LA0280ACBF	COFFEE FEDERAL	2	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531129	APD	00LA0423ACBF	COFFEE FEDERAL	8	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531158	APD	00LA0453ACBF	COFFEE FEDERAL	7	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531175	APD	00LA0295ACBF	COFFEE FEDERAL	1	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531252	APD	00LA0557ACBF	COFFEE FEDERAL	3	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531332	APD	00LA0471ACBF	COFFEE FEDERAL	5	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531333	APD	00LA0469ACBF	COFFEE FEDERAL	6	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531576	APD	00LA0467ACBF	COFFEE FEDERAL	10	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001531593	APD	00LA0335ACBF	COFFEE FEDERAL	4	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001539226	APD	11DLM0325ACBF	COFFEE FEDERAL	11	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001540957	APD	12KMS2980AECBF	COFFEE FEDERAL	12	APACHE CORPORATION	NMLC029548A	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001540958	APD	13KMS3679AECBF	COFFEE FEDERAL	13	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001540959	APD	13KMS3678AECBF	COFFEE FEDERAL	14	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001540960	APD	13KMS3680AECBF	COFFEE FEDERAL	16	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001540961	APD	13KMS3681AECBF	COFFEE FEDERAL	21	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001541036	APD	13KMS3682AECBF	COFFEE FEDERAL	17	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001541043	APD	13KMS3677AECBF	COFFEE FEDERAL	15	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001541044	APD	13KMS3676AECBF	COFFEE FEDERAL	19	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001541045	APD	13KMS3683AECBF	COFFEE FEDERAL	20	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001542400	APD	14DLM2332ACBF	COFFEE FEDERAL	18	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001543366	APD	15ASB0137ACBF	COFFEE FEDERAL	22D	APACHE CORPORATION	NMLC029548A	POW
Carlsbad	3001542469	APD	14DLM2335ACBF	CROW FEDERAL SWD	1	APACHE CORPORATION	NMLC029426B	WDW
Carlsbad	3002510794	APD	96AIR8020AHOF	DUTHIE ANDREWS	1	APACHE CORPORATION	NMLC054453	PGW
Carlsbad	3002530901	APD	96AIR8022AHOF	DUTHIE ANDREWS	7	APACHE CORPORATION	NMLC054453	PGW
Carlsbad	3001530255	APD	98JA0684ACBF	E L FEDERAL	1	APACHE CORPORATION	NMNM0467932	POW
Carlsbad	3001530256	APD	98JA0682ACBF	E L FEDERAL	2	APACHE CORPORATION	NMNM0467932	POW
Carlsbad	3001530257	APD	98JA0686ACBF	E L FEDERAL	3	APACHE CORPORATION	NMNM0467932	POW
Carlsbad	3001530258	APD	98JA0688ACBF	E L FEDERAL	4	APACHE CORPORATION	NMNM0467932	POW
Carlsbad	3001530262	APD	98JA0696ACBF	E L FEDERAL	8	APACHE CORPORATION	NMNM0467932	WDW
Carlsbad	3001536160	APD	08DLM0118ACBF	E L FEDERAL	9	APACHE CORPORATION	NMNM0467932	POW
Carlsbad	3001536718	APD	08CMR0354ACBF	E L FEDERAL	10	APACHE CORPORATION	NMNM0467932	POW
Carlsbad	3001537099	APD	09CMR0279ACBF	E L FEDERAL	11	APACHE CORPORATION	NMNM0467932	POW
Carlsbad	3002506325	APD	96AIR5313AHOF	EAST BLINEBRY DRINKARD UNIT	3	APACHE CORPORATION	NMNM125054	WIW
Carlsbad	3002506326	APD	96AIR5314AHOF	EAST BLINEBRY DRINKARD UNIT	5	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002506327	APD	96AIR5315AHOF	EAST BLINEBRY DRINKARD UNIT	4	APACHE CORPORATION	NMNM125054	ABD
Carlsbad	3002506328	APD	96AIR5316AHOF	EAST BLINEBRY DRINKARD UNIT	1	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002506330	APD	96AIR5317AHOF	EAST BLINEBRY DRINKARD UNIT	2	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002506335	APD	96AIR5332AHOF	EAST BLINEBRY DRINKARD UNIT	8	APACHE CORPORATION	NMLC065525B	POW
Carlsbad	3002506336	APD	96AIR5306AHOF	EAST BLINEBRY DRINKARD UNIT	10	APACHE CORPORATION	NMNM125056	POW
Carlsbad	3002506337	APD	96AIR5307AHOF	EAST BLINEBRY DRINKARD UNIT	11	APACHE CORPORATION	NMNM125056	POW
Carlsbad	3002506476	APD	96AIR4458AHOF	EAST BLINEBRY DRINKARD UNIT	13	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506477	APD	96AIR4459AHOF	EAST BLINEBRY DRINKARD UNIT	12	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506478	APD	96AIR4460AHOF	EAST BLINEBRY DRINKARD UNIT	17	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506479	APD	96AIR4461AHOF	EAST BLINEBRY DRINKARD UNIT	18	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506480	APD	96AIR4464AHOF	EAST BLINEBRY DRINKARD UNIT	19	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506481	APD	96AIR4462AHOF	EAST BLINEBRY DRINKARD UNIT	20	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506482	APD	96AIR4463AHOF	EAST BLINEBRY DRINKARD UNIT	14	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506523	APD	96AIR4465AHOF	EAST BLINEBRY DRINKARD UNIT	21	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506526	APD	96AIR4468AHOF	EAST BLINEBRY DRINKARD UNIT	16	APACHE CORPORATION	NMNM125057	ABD
Carlsbad	3002506527	APD	96AIR4469AHOF	EAST BLINEBRY DRINKARD UNIT	15	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506528	APD	96AIR4470AHOF	EAST BLINEBRY DRINKARD UNIT	22	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506529	APD	96AIR4471AHOF	EAST BLINEBRY DRINKARD UNIT	23	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506530	APD	96AIR4473AHOF	EAST BLINEBRY DRINKARD UNIT	24	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506531	APD	96AIR4472AHOF	EAST BLINEBRY DRINKARD UNIT	25	APACHE CORPORATION	NMLC032096B	WIW
Carlsbad	3002506535	APD	96AIR4509AHOF	EAST BLINEBRY DRINKARD UNIT	27	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506536	APD	96AIR4474AHOF	EAST BLINEBRY DRINKARD UNIT	26	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506538	APD	96AIR4475AHOF	EAST BLINEBRY DRINKARD UNIT	28	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506539	APD	96AIR4476AHOF	EAST BLINEBRY DRINKARD UNIT	30	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506541	APD	96AIR4478AHOF	EAST BLINEBRY DRINKARD UNIT	31	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506543	APD	96AIR4480AHOF	EAST BLINEBRY DRINKARD UNIT	33	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506544	APD	96AIR4481AHOF	EAST BLINEBRY DRINKARD UNIT	34	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506545	APD	96AIR4482AHOF	EAST BLINEBRY DRINKARD UNIT	35	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506546	APD	96AIR4483AHOF	EAST BLINEBRY DRINKARD UNIT	36	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506548	APD	96AIR4484AHOF	EAST BLINEBRY DRINKARD UNIT	29	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506550	NON	FE06DG0434AHO	EAST BLINEBRY DRINKARD UNIT	48	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506551	NON	FE06DG0433AHO	EAST BLINEBRY DRINKARD UNIT	47	APACHE CORPORATION	FEE	TA
Carlsbad	3002506556	APD	96AIR4457AHOF	EAST BLINEBRY DRINKARD UNIT	37	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506557	APD	96AIR4486AHOF	EAST BLINEBRY DRINKARD UNIT	38	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506560	APD	96AIR4489AHOF	EAST BLINEBRY DRINKARD UNIT	39	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506561	APD	96AIR4490AHOF	EAST BLINEBRY DRINKARD UNIT	40	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506562	APD	96AIR4491AHOF	EAST BLINEBRY DRINKARD UNIT	41	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506566	NON	FE06DG0437AHO	EAST BLINEBRY DRINKARD UNIT	53	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506567	NON	FE06DG0440AHO	EAST BLINEBRY DRINKARD UNIT	54	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506568	NON	FE06DG0441AHO	EAST BLINEBRY DRINKARD UNIT	55	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506573	APD	96AIR4492AHOF	EAST BLINEBRY DRINKARD UNIT	43	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002506574	APD	96AIR4494AHOF	EAST BLINEBRY DRINKARD UNIT	44	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506575	APD	96AIR4495AHOF	EAST BLINEBRY DRINKARD UNIT	45	APACHE CORPORATION	NMNM125057	WIW
Carlsbad	3002506582	NON	FE06DG0439AHO	EAST BLINEBRY DRINKARD UNIT	49	APACHE CORPORATION	FEE	ABD
Carlsbad	3002506583	NON	FE06DG0438AHO	EAST BLINEBRY DRINKARD UNIT	50	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506583	NON	FE06DG0438AHO	EAST BLINEBRY DRINKARD UNIT	50	APACHE CORPORATION	FEE	WIW
Carlsbad	3002529061	APD	96AIR5329AHOF	EAST BLINEBRY DRINKARD UNIT	57	APACHE CORPORATION	NMLC065525A	WIW
Carlsbad	3002530469	APD	96AIR5309AHOF	EAST BLINEBRY DRINKARD UNIT	6	APACHE CORPORATION	NMLC065525	POW
Carlsbad	3002534937	APD	00LA0074AHOF	EAST BLINEBRY DRINKARD UNIT	9	APACHE CORPORATION	NMLC065525B	POW
Carlsbad	3002536810	NON	FE06DG0436AHO	EAST BLINEBRY DRINKARD UNIT	52	APACHE CORPORATION	FEE	POW
Carlsbad	3002536810	NON	FE06DG0436AHO	EAST BLINEBRY DRINKARD UNIT	52	APACHE CORPORATION	FEE	POW
Carlsbad	3002538113	NON	FE09DAP0516AHO	EAST BLINEBRY DRINKARD UNIT	60	APACHE CORPORATION	FEE	POW
Carlsbad	3002538113	NON	FE09DAP0516AHO	EAST BLINEBRY DRINKARD UNIT	60	APACHE CORPORATION	FEE	POW
Carlsbad	3002538233	APD	06KMS0008AHOF	EAST BLINEBRY DRINKARD UNIT	62	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002538234	APD	06KMS0010AHOF	EAST BLINEBRY DRINKARD UNIT	63	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002538280	APD	06KMS0006AHOF	EAST BLINEBRY DRINKARD UNIT	61	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002538301	APD	06KMS0012AHOF	EAST BLINEBRY DRINKARD UNIT	64	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002538500	NON	FE09DAP0515AHO	EAST BLINEBRY DRINKARD UNIT	68	APACHE CORPORATION	FEE	POW
Carlsbad	3002538501	NON	FE09DAP0514AHO	EAST BLINEBRY DRINKARD UNIT	70	APACHE CORPORATION	FEE	POW
Carlsbad	3002538536	NON	FE09DAP0513AHO	EAST BLINEBRY DRINKARD UNIT	71	APACHE CORPORATION	FEE	POW
Carlsbad	3002538537	NON	FE09DAP0512AHO	EAST BLINEBRY DRINKARD UNIT	72	APACHE CORPORATION	FEE	POW
Carlsbad	3002538751	APD	08TLC0040AHOF	EAST BLINEBRY DRINKARD UNIT	69	APACHE CORPORATION	NMNM125057	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002538760	APD	08TLC0038AHOF	EAST BLINEBRY DRINKARD UNIT	65	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002538761	APD	08TLC0034AHOF	EAST BLINEBRY DRINKARD UNIT	66	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002538771	APD	08TLC0036AHOF	EAST BLINEBRY DRINKARD UNIT	67	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539012	NON	FE09DAP0511AHO	EAST BLINEBRY DRINKARD UNIT	75	APACHE CORPORATION	FEE	POW
Carlsbad	3002539034	NON	FE09DAP0510AHO	EAST BLINEBRY DRINKARD UNIT	90	APACHE CORPORATION	FEE	POW
Carlsbad	3002539035	NON	FE09DAP0509AHO	EAST BLINEBRY DRINKARD UNIT	94	APACHE CORPORATION	FEE	POW
Carlsbad	3002539036	NON	FE09DAP0508AHO	EAST BLINEBRY DRINKARD UNIT	92	APACHE CORPORATION	FEE	POW
Carlsbad	3002539057	NON	FE09DAP0507AHO	EAST BLINEBRY DRINKARD UNIT	81	APACHE CORPORATION	FEE	POW
Carlsbad	3002539273	NON	FE12LJ0006AHO	EAST BLINEBRY DRINKARD UNIT	77	APACHE CORPORATION	FEE	POW
Carlsbad	3002539274	NON	FE11DAP0142AHO	EAST BLINEBRY DRINKARD UNIT	78	APACHE CORPORATION	FEE	POW
Carlsbad	3002539275	NON	FE12LJ0004AHO	EAST BLINEBRY DRINKARD UNIT	89	APACHE CORPORATION	FEE	POW
Carlsbad	3002539378	NON	FE10DAP0004AHO	EAST BLINEBRY DRINKARD UNIT	79	APACHE CORPORATION	FEE	POW
Carlsbad	3002539379	NON	FE12LJ0003AHO	EAST BLINEBRY DRINKARD UNIT	74	APACHE CORPORATION	FEE	POW
Carlsbad	3002539380	APD	09TLC0004AHOF	EAST BLINEBRY DRINKARD UNIT	73	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539391	APD	09TLC0010AHOF	EAST BLINEBRY DRINKARD UNIT	106	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002539392	APD	09TLC0008AHOF	EAST BLINEBRY DRINKARD UNIT	108	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002539393	APD	09TLC0012AHOF	EAST BLINEBRY DRINKARD UNIT	113	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539405	APD	09TLC0006AHOF	EAST BLINEBRY DRINKARD UNIT	109	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539406	APD	09BH0073AHOF	EAST BLINEBRY DRINKARD UNIT	87	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539459	APD	09DLM0150AHOF	EAST BLINEBRY DRINKARD UNIT	83	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539460	APD	09DLM0152AHOF	EAST BLINEBRY DRINKARD UNIT	85	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539461	APD	09DLM0154AHOF	EAST BLINEBRY DRINKARD UNIT	100	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539568	NON	FE11DAP0143AHO	EAST BLINEBRY DRINKARD UNIT	82	APACHE CORPORATION	FEE	POW
Carlsbad	3002539568	NON	FE11DAP0143AHO	EAST BLINEBRY DRINKARD UNIT	82	APACHE CORPORATION	FEE	POW
Carlsbad	3002539644	APD	10DLM0128AHOF	EAST BLINEBRY DRINKARD UNIT	86	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539645	APD	10KMS0149AHOF	EAST BLINEBRY DRINKARD UNIT	98	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539674	APD	10DLM0134AHOF	EAST BLINEBRY DRINKARD UNIT	80	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539675	APD	10CMR0053AHOF	EAST BLINEBRY DRINKARD UNIT	84	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539676	APD	10BH0013AHOF	EAST BLINEBRY DRINKARD UNIT	95	APACHE CORPORATION	NMLC065525B	POW
Carlsbad	3002539677	APD	10DLM0146AHOF	EAST BLINEBRY DRINKARD UNIT	96	APACHE CORPORATION	NMLC065525A	POW
Carlsbad	3002539678	APD	10CMR0064AHOF	EAST BLINEBRY DRINKARD UNIT	101	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539679	APD	10DLM0149AHOF	EAST BLINEBRY DRINKARD UNIT	111	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539706	NON	FE12LJ0002AHO	EAST BLINEBRY DRINKARD UNIT	91	APACHE CORPORATION	FEE	POW
Carlsbad	3002539707	NON	FE12LJ0005AHO	EAST BLINEBRY DRINKARD UNIT	93	APACHE CORPORATION	FEE	POW
Carlsbad	3002539842	APD	10KMS0490AHOF	EAST BLINEBRY DRINKARD UNIT	102	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539843	APD	10CMR0165AHOF	EAST BLINEBRY DRINKARD UNIT	103	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539844	APD	10KMS0486AHOF	EAST BLINEBRY DRINKARD UNIT	104	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539845	APD	10KMS0488AHOF	EAST BLINEBRY DRINKARD UNIT	112	APACHE CORPORATION	NMLC065525B	POW
Carlsbad	3002539846	APD	10CMR0167AHOF	EAST BLINEBRY DRINKARD UNIT	117	APACHE CORPORATION	NMLC065455	POW
Carlsbad	3002539847	APD	10BH0085AHOF	EAST BLINEBRY DRINKARD UNIT	118	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002539848	APD	10BH0087AHOF	EAST BLINEBRY DRINKARD UNIT	122	APACHE CORPORATION	NMLC065525B	POW
Carlsbad	3002539865	APD	10KMS0484AHOF	EAST BLINEBRY DRINKARD UNIT	99	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002540263	APD	11DLM0244AHOF	EAST BLINEBRY DRINKARD UNIT	97	APACHE CORPORATION	NMLC065525B	POW
Carlsbad	3002540264	APD	11KMS0138AHOF	EAST BLINEBRY DRINKARD UNIT	105	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002540265	APD	11KMS0136AHOF	EAST BLINEBRY DRINKARD UNIT	110	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002540266	APD	11KMS0132AHOF	EAST BLINEBRY DRINKARD UNIT	114	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002540267	APD	11KMS0134AHOF	EAST BLINEBRY DRINKARD UNIT	115	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002540268	APD	11CMR0065AHOF	EAST BLINEBRY DRINKARD UNIT	116	APACHE CORPORATION	NMNM125056	POW
Carlsbad	3002540269	APD	11CMR0067AHOF	EAST BLINEBRY DRINKARD UNIT	129	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002540713	NON	FE13LJ0058AHO	EAST BLINEBRY DRINKARD UNIT	130	APACHE CORPORATION	FEE	POW
Carlsbad	3002540713	NON	FE13LJ0058AHO	EAST BLINEBRY DRINKARD UNIT	130	APACHE CORPORATION	FEE	POW
Carlsbad	3002541288	APD	13KMS1570AHOF	EAST BLINEBRY DRINKARD UNIT	120	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002541335	APD	12DLM0685AHOF	EAST BLINEBRY DRINKARD UNIT	107	APACHE CORPORATION	NMNM125054	POW
Carlsbad	3002539151	APD	08CMR0099AHOF	ELLIOTT A	10	APACHE CORPORATION	NMLC032591A	POW
Carlsbad	3002539152	APD	08CMR0097AHOF	ELLIOTT A	11	APACHE CORPORATION	NMLC032591A	POW
Carlsbad	3002537042	APD	05AL0021AEHOF	ELLIOTT B	9	APACHE CORPORATION	NMLC032573B	WDW
Carlsbad	3002541442	APD	12BMW0089AEHOF	ELLIOTT EM 20 FEDERAL	1	APACHE CORPORATION	NMNM0557256	POW
Carlsbad	3002541443	APD	12BMW0087AEHOF	ELLIOTT EM 20 FEDERAL	3	APACHE CORPORATION	NMNM0557256	POW
Carlsbad	3002541444	APD	12BMW0105AEHOF	ELLIOTT EM 20 FEDERAL	4	APACHE CORPORATION	NMNM0557256	POW
Carlsbad	3002541445	APD	12BMW0088AEHOF	ELLIOTT EM 20 FEDERAL	5	APACHE CORPORATION	NMNM0557256	POW
Carlsbad	3002541446	APD	12BMW0090AEHOF	ELLIOTT EM 20 FEDERAL	6	APACHE CORPORATION	NMNM0557256	POW
Carlsbad	3002506332	APD	96AIR5327AHOF	ELLIOTT FED	1	APACHE CORPORATION	NMLC065525A	POW
Carlsbad	3002506334	APD	96AIR5331AHOF	ELLIOTT-MONTEREY	5	APACHE CORPORATION	NMLC065525B	WIW
Carlsbad	3001500755	APD	96AIR1227ACBF	EMPIPE ABO J	12	APACHE CORPORATION	NMLC065478B	POW
Carlsbad	3001503180	APD	96AIR1352ACBF	EMPIRE ABO B	49	APACHE CORPORATION	NMNM29281	WIW
Carlsbad	3001503188	NON	ST96AIR1497ACB	EMPIRE ABO B	45	APACHE CORPORATION	STATE	WIW
Carlsbad	3001503195	APD	96AIR1500ACBF	EMPIRE ABO B	48	APACHE CORPORATION	NMLC028480A	WIW
Carlsbad	3001501534	NON	ST96AIR1275ACB	EMPIRE ABO C	42	APACHE CORPORATION	STATE	POW
Carlsbad	3001501536	NON	ST96AIR1276ACB	EMPIRE ABO C	41	APACHE CORPORATION	STATE	POW
Carlsbad	3001501554	NON	ST96AIR1283ACB	EMPIRE ABO C	39	APACHE CORPORATION	STATE	POW
Carlsbad	3001501556	NON	ST96AIR1285ACB	EMPIRE ABO C	40	APACHE CORPORATION	STATE	POW
Carlsbad	3001501557	NON	ST96AIR1286ACB	EMPIRE ABO C	37	APACHE CORPORATION	STATE	POW
Carlsbad	3001501583	NON	ST96AIR1290ACB	EMPIRE ABO C	36	APACHE CORPORATION	STATE	POW
Carlsbad	3001503184	APD	96AIR1353ACBF	EMPIRE ABO C	50	APACHE CORPORATION	NMNM29281	WIW
Carlsbad	3001503192	APD	96AIR1356ACBF	EMPIRE ABO C	48	APACHE CORPORATION	NMLC062407	WIW
Carlsbad	3001503193	APD	96AIR1357ACBF	EMPIRE ABO C	47	APACHE CORPORATION	NMLC062407	POW
Carlsbad	3001503194	NON	ST96AIR1358ACB	EMPIRE ABO C	46	APACHE CORPORATION	STATE	POW
Carlsbad	3001501533	NON	ST96AIR1274ACB	EMPIRE ABO D	41	APACHE CORPORATION	STATE	ABD
Carlsbad	3001501550	NON	ST96AIR1280ACB	EMPIRE ABO D	38	APACHE CORPORATION	STATE	POW
Carlsbad	3001501552	NON	ST96AIR1282ACB	EMPIRE ABO D	39	APACHE CORPORATION	STATE	POW
Carlsbad	3001501555	NON	ST96AIR1284ACB	EMPIRE ABO D	40	APACHE CORPORATION	STATE	POW
Carlsbad	3001501579	NON	ST96AIR1287ACB	EMPIRE ABO D	33	APACHE CORPORATION	STATE	POW
Carlsbad	3001501582	NON	ST96AIR1289ACB	EMPIRE ABO D	36	APACHE CORPORATION	STATE	POW
Carlsbad	3001522803	NON	ST96AIR1447ACB	EMPIRE ABO D	361	APACHE CORPORATION	STATE	POW
Carlsbad	3001501697	NON	ST96AIR1327ACB	EMPIRE ABO E	30	APACHE CORPORATION	STATE	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001501716	NON	ST96AIR1335ACB	EMPIRE ABO E	35	APACHE CORPORATION	STATE	POW
Carlsbad	3001501720	NON	ST96AIR1338ACB	EMPIRE ABO E	36	APACHE CORPORATION	STATE	POW
Carlsbad	3001501727	NON	ST96AIR1339ACB	EMPIRE ABO E	33	APACHE CORPORATION	STATE	POW
Carlsbad	3001501736	NON	ST96AIR1343ACB	EMPIRE ABO E	38	APACHE CORPORATION	STATE	POW
Carlsbad	3001521535	NON	ST96AIR1369ACB	EMPIRE ABO E	371	APACHE CORPORATION	STATE	POW
Carlsbad	3001521822	NON	ST96AIR1385ACB	EMPIRE ABO E	382	APACHE CORPORATION	STATE	POW
Carlsbad	3001521826	NON	ST96AIR1386ACB	EMPIRE ABO E	391	APACHE CORPORATION	STATE	POW
Carlsbad	3001522203	NON	ST96AIR1406ACB	EMPIRE ABO E	372	APACHE CORPORATION	STATE	POW
Carlsbad	3001522486	NON	ST96AIR1414ACB	EMPIRE ABO E	341	APACHE CORPORATION	STATE	POW
Carlsbad	3001522523	NON	ST96AIR1416ACB	EMPIRE ABO E	351	APACHE CORPORATION	STATE	POW
Carlsbad	3001522766	NON	ST96AIR1440ACB	EMPIRE ABO E	384	APACHE CORPORATION	STATE	POW
Carlsbad	3001522804	NON	ST96AIR1448ACB	EMPIRE ABO E	363	APACHE CORPORATION	STATE	POW
Carlsbad	3001522817	NON	ST96AIR1453ACB	EMPIRE ABO E	362	APACHE CORPORATION	STATE	POW
Carlsbad	3001522819	NON	ST96AIR1455ACB	EMPIRE ABO E	393	APACHE CORPORATION	STATE	POW
Carlsbad	3001522843	NON	ST96AIR1467ACB	EMPIRE ABO E	395	APACHE CORPORATION	STATE	POW
Carlsbad	3001501689	NON	ST96AIR1319ACB	EMPIRE ABO F	30	APACHE CORPORATION	STATE	POW
Carlsbad	3001501714	NON	ST96AIR1333ACB	EMPIRE ABO F	34	APACHE CORPORATION	STATE	POW
Carlsbad	3001501719	NON	ST96AIR1337ACB	EMPIRE ABO F	36	APACHE CORPORATION	STATE	POW
Carlsbad	3001521394	NON	ST96AIR1368ACB	EMPIRE ABO F	331	APACHE CORPORATION	STATE	POW
Carlsbad	3001521537	NON	ST96AIR1370ACB	EMPIRE ABO F	351	APACHE CORPORATION	STATE	POW
Carlsbad	3001521806	NON	ST96AIR1384ACB	EMPIRE ABO F	371	APACHE CORPORATION	STATE	POW
Carlsbad	3001521962	NON	ST96AIR1390ACB	EMPIRE ABO F	332	APACHE CORPORATION	STATE	POW
Carlsbad	3001521963	NON	ST96AIR1391ACB	EMPIRE ABO F	361	APACHE CORPORATION	STATE	POW
Carlsbad	3001522138	NON	ST96AIR1405ACB	EMPIRE ABO F	381	APACHE CORPORATION	STATE	ABD
Carlsbad	3001522227	NON	ST96AIR1408ACB	EMPIRE ABO F	341	APACHE CORPORATION	STATE	POW
Carlsbad	3001522594	NON	ST96AIR1424ACB	EMPIRE ABO F	322	APACHE CORPORATION	STATE	POW
Carlsbad	3001522628	NON	ST96AIR1428ACB	EMPIRE ABO F	352	APACHE CORPORATION	STATE	POW
Carlsbad	3001522629	NON	ST96AIR1429ACB	EMPIRE ABO F	353	APACHE CORPORATION	STATE	POW
Carlsbad	3001522630	NON	ST96AIR1430ACB	EMPIRE ABO F	362	APACHE CORPORATION	STATE	POW
Carlsbad	3001522772	NON	ST96AIR1443ACB	EMPIRE ABO F	375	APACHE CORPORATION	STATE	POW
Carlsbad	3001522776	NON	ST96AIR1445ACB	EMPIRE ABO F	382	APACHE CORPORATION	STATE	POW
Carlsbad	3001522786	NON	ST96AIR1446ACB	EMPIRE ABO F	376	APACHE CORPORATION	STATE	POW
Carlsbad	3001522805	NON	ST96AIR1449ACB	EMPIRE ABO F	373	APACHE CORPORATION	STATE	POW
Carlsbad	3001522806	NON	ST96AIR1450ACB	EMPIRE ABO F	383	APACHE CORPORATION	STATE	POW
Carlsbad	3001522844	NON	ST96AIR1463ACB	EMPIRE ABO F	354	APACHE CORPORATION	STATE	POW
Carlsbad	3001522863	NON	ST96AIR1468ACB	EMPIRE ABO F	342	APACHE CORPORATION	STATE	POW
Carlsbad	3001522927	NON	ST96AIR1476ACB	EMPIRE ABO F	364	APACHE CORPORATION	STATE	POW
Carlsbad	3001501763	NON	ST96AIR1350ACB	EMPIRE ABO G	35	APACHE CORPORATION	STATE	POW
Carlsbad	3001505934	NON	ST96AIR1360ACB	EMPIRE ABO G	19	APACHE CORPORATION	STATE	POW
Carlsbad	3001521784	NON	ST96AIR1382ACB	EMPIRE ABO G	331	APACHE CORPORATION	STATE	POW
Carlsbad	3001521797	NON	ST96AIR1351ACB	EMPIRE ABO G	341	APACHE CORPORATION	STATE	POW
Carlsbad	3001521964	NON	ST96AIR1392ACB	EMPIRE ABO G	342	APACHE CORPORATION	STATE	POW
Carlsbad	3001522123	NON	ST96AIR1403ACB	EMPIRE ABO G	351	APACHE CORPORATION	STATE	POW
Carlsbad	3001522525	NON	ST96AIR1418ACB	EMPIRE ABO G	322	APACHE CORPORATION	STATE	POW
Carlsbad	3001522631	NON	ST96AIR1431ACB	EMPIRE ABO G	333	APACHE CORPORATION	STATE	POW
Carlsbad	3001522846	NON	ST96AIR1465ACB	EMPIRE ABO G	352	APACHE CORPORATION	STATE	POW
Carlsbad	3001522864	NON	ST96AIR1469ACB	EMPIRE ABO G	291	APACHE CORPORATION	STATE	POW
Carlsbad	3001500609	APD	96AIR1203ACBF	EMPIRE ABO H	12	APACHE CORPORATION	NMLC064050A	ABD
Carlsbad	3001500676	NON	ST96AIR1204ACB	EMPIRE ABO H	17	APACHE CORPORATION	STATE	POW
Carlsbad	3001501641	NON	ST96AIR1293ACB	EMPIRE ABO H	24	APACHE CORPORATION	STATE	POW
Carlsbad	3001521541	NON	ST96AIR1374ACB	EMPIRE ABO H	291	APACHE CORPORATION	STATE	POW
Carlsbad	3001522009	NON	ST96AIR1393ACB	EMPIRE ABO H	272	APACHE CORPORATION	STATE	POW
Carlsbad	3001522597	NON	ST96AIR1425ACB	EMPIRE ABO H	281	APACHE CORPORATION	STATE	POW
Carlsbad	3001500708	APD	96AIR1213ACBF	EMPIRE ABO I	19	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001500724	NON	ST96AIR1155ACB	EMPIRE ABO I	16	APACHE CORPORATION	STATE	POW
Carlsbad	3001500729	NON	ST96AIR1128ACB	EMPIRE ABO I	13	APACHE CORPORATION	STATE	POW
Carlsbad	3001500751	APD	96AIR1223ACBF	EMPIRE ABO I	11	APACHE CORPORATION	NMLC065478B	POW
Carlsbad	3001501215	APD	96AIR1271ACBF	EMPIRE ABO I	20	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001502606	NON	ST96AIR1189ACB	EMPIRE ABO I	26	APACHE CORPORATION	STATE	POW
Carlsbad	3001502613	NON	ST96AIR1159ACB	EMPIRE ABO I	21	APACHE CORPORATION	STATE	POW
Carlsbad	3001502615	NON	ST96AIR1183ACB	EMPIRE ABO I	24	APACHE CORPORATION	STATE	POW
Carlsbad	3001502621	NON	ST96AIR1165ACB	EMPIRE ABO I	22	APACHE CORPORATION	STATE	POW
Carlsbad	3001522011	NON	ST96AIR1198ACB	EMPIRE ABO I	281	APACHE CORPORATION	STATE	POW
Carlsbad	3001522526	NON	ST96AIR1194ACB	EMPIRE ABO I	272	APACHE CORPORATION	STATE	POW
Carlsbad	3001522607	NON	ST96AIR1482ACB	EMPIRE ABO I	291	APACHE CORPORATION	STATE	POW
Carlsbad	3001500733	NON	ST96AIR1129ACB	EMPIRE ABO J	13	APACHE CORPORATION	STATE	POW
Carlsbad	3001500741	NON	ST96AIR1477ACB	EMPIRE ABO J	15	APACHE CORPORATION	STATE	POW
Carlsbad	3001500748	APD	96AIR1220ACBF	EMPIRE ABO J	11	APACHE CORPORATION	NMLC065478B	ABD
Carlsbad	3001500750	APD	96AIR1222ACBF	EMPIRE ABO J	9	APACHE CORPORATION	NMLC028805B	POW
Carlsbad	3001502602	NON	ST96AIR1481ACB	EMPIRE ABO J	26	APACHE CORPORATION	STATE	POW
Carlsbad	3001502614	NON	ST96AIR1173ACB	EMPIRE ABO J	23	APACHE CORPORATION	STATE	POW
Carlsbad	3001502619	NON	ST96AIR1160ACB	EMPIRE ABO J	21	APACHE CORPORATION	STATE	POW
Carlsbad	3001502620	NON	ST96AIR1166ACB	EMPIRE ABO J	22	APACHE CORPORATION	STATE	POW
Carlsbad	3001521395	NON	ST96AIR1162ACB	EMPIRE ABO J	211	APACHE CORPORATION	STATE	POW
Carlsbad	3001521553	APD	96AIR1376ACBF	EMPIRE ABO J	201	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001521746	NON	ST96AIR1169ACB	EMPIRE ABO J	221	APACHE CORPORATION	STATE	POW
Carlsbad	3001521783	APD	96AIR1381ACBF	EMPIRE ABO J	202	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001522012	NON	ST96AIR1170ACB	EMPIRE ABO J	222	APACHE CORPORATION	STATE	POW
Carlsbad	3001522527	NON	ST96AIR1171ACB	EMPIRE ABO J	223	APACHE CORPORATION	STATE	POW
Carlsbad	3001522637	NON	ST96AIR1163ACB	EMPIRE ABO J	212	APACHE CORPORATION	STATE	POW
Carlsbad	3001522656	APD	96AIR1435ACBF	EMPIRE ABO J	203	APACHE CORPORATION	NMNM0557371	POW
Carlsbad	3001523116	NON	ST96AIR1164ACB	EMPIRE ABO J	213	APACHE CORPORATION	STATE	POW
Carlsbad	3001500716	NON	ST96AIR1147ACB	EMPIRE ABO K	15	APACHE CORPORATION	STATE	POW
Carlsbad	3001500717	NON	ST96AIR1156ACB	EMPIRE ABO K	16	APACHE CORPORATION	STATE	POW
Carlsbad	3001500732	NON	ST96AIR1130ACB	EMPIRE ABO K	13	APACHE CORPORATION	STATE	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001500735	NON	ST96AIR1139ACB	EMPIRE ABO K	14	APACHE CORPORATION	STATE	POW
Carlsbad	3001500754	APD	96AIR1226ACBF	EMPIRE ABO K	12	APACHE CORPORATION	NMLC065478B	POW
Carlsbad	3001500760	APD	96AIR1231ACBF	EMPIRE ABO K	9	APACHE CORPORATION	NMLC061783B	POW
Carlsbad	3001500774	APD	96AIR1234ACBF	EMPIRE ABO K	8	APACHE CORPORATION	NMLC061783A	ABD
Carlsbad	3001500776	APD	96AIR1235ACBF	EMPIRE ABO K	7	APACHE CORPORATION	NMLC061783A	ABD
Carlsbad	3001501210	APD	96AIR1270ACBF	EMPIRE ABO K	10	APACHE CORPORATION	NMLC065478B	POW
Carlsbad	3001502622	NON	ST96AIR1161ACB	EMPIRE ABO K	21	APACHE CORPORATION	STATE	POW
Carlsbad	3001502623	NON	ST96AIR1167ACB	EMPIRE ABO K	22	APACHE CORPORATION	STATE	POW
Carlsbad	3001521792	APD	96AIR1383ACBF	EMPIRE ABO K	182	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001522096	APD	96AIR1400ACBF	EMPIRE ABO K	183	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001522559	APD	96AIR1419ACBF	EMPIRE ABO K	184	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001522560	APD	96AIR1420ACBF	EMPIRE ABO K	192	APACHE CORPORATION	NMNM016788	ABD
Carlsbad	3001522657	APD	96AIR1436ACBF	EMPIRE ABO K	193	APACHE CORPORATION	NMNM016788	ABD
Carlsbad	3001522658	APD	96AIR1437ACBF	EMPIRE ABO K	194	APACHE CORPORATION	NMNM016788	ABD
Carlsbad	3001522807	NON	ST96AIR1132ACB	EMPIRE ABO K	131	APACHE CORPORATION	STATE	POW
Carlsbad	3001522896	NON	ST96AIR1145ACB	EMPIRE ABO K	143	APACHE CORPORATION	STATE	POW
Carlsbad	3001522914	NON	ST96AIR1158ACB	EMPIRE ABO K	161	APACHE CORPORATION	STATE	POW
Carlsbad	3001522952	NON	ST96AIR1143ACB	EMPIRE ABO K	142	APACHE CORPORATION	STATE	POW
Carlsbad	3001523548	NON	ST96AIR1483ACB	EMPIRE ABO K	211	APACHE CORPORATION	STATE	POW
Carlsbad	3001500699	APD	96AIR1208ACBF	EMPIRE ABO L	20	APACHE CORPORATION	NMNM016788	POW
Carlsbad	3001500723	NON	ST96AIR1131ACB	EMPIRE ABO L	13	APACHE CORPORATION	STATE	POW
Carlsbad	3001500730	NON	ST96AIR1140ACB	EMPIRE ABO L	14	APACHE CORPORATION	STATE	POW
Carlsbad	3001500753	APD	96AIR1225ACBF	EMPIRE ABO L	9	APACHE CORPORATION	NMLC061783B	POW
Carlsbad	3001500756	APD	96AIR1228ACBF	EMPIRE ABO L	10	APACHE CORPORATION	NMLC065478B	POW
Carlsbad	3001500757	APD	96AIR1229ACBF	EMPIRE ABO L	12	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001500758	APD	96AIR1230ACBF	EMPIRE ABO L	11	APACHE CORPORATION	NMNM025604	ABD
Carlsbad	3001500769	APD	96AIR1232ACBF	EMPIRE ABO L	6	APACHE CORPORATION	NMNM029135	POW
Carlsbad	3001502610	NON	ST96AIR1168ACB	EMPIRE ABO L	22	APACHE CORPORATION	STATE	POW
Carlsbad	3001521852	APD	96AIR1387ACBF	EMPIRE ABO L	111	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001522062	APD	96AIR1399ACBF	EMPIRE ABO L	121	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001522609	NON	ST96AIR1146ACB	EMPIRE ABO L	143	APACHE CORPORATION	STATE	POW
Carlsbad	3001522777	NON	ST96AIR1137ACB	EMPIRE ABO L	134	APACHE CORPORATION	STATE	POW
Carlsbad	3001522815	APD	96AIR1452ACBF	EMPIRE ABO L	171	APACHE CORPORATION	NMNM0557371	ABD
Carlsbad	3001522824	NON	ST96AIR1136ACB	EMPIRE ABO L	133	APACHE CORPORATION	STATE	POW
Carlsbad	3001500842	APD	96AIR1244ACBF	EMPIRE ABO M	8	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001500847	APD	96AIR1248ACBF	EMPIRE ABO M	7	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001500858	APD	96AIR1257ACBF	EMPIRE ABO M	9	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001521555	APD	96AIR1378ACBF	EMPIRE ABO M	121	APACHE CORPORATION	NMLC065478B	ABD
Carlsbad	3001522098	APD	96AIR1402ACBF	EMPIRE ABO M	122	APACHE CORPORATION	NMLC065478B	ABD
Carlsbad	3001522812	APD	96AIR1451ACBF	EMPIRE ABO M	123	APACHE CORPORATION	NMNM025604	ABD
Carlsbad	3001522833	APD	96AIR1460ACBF	EMPIRE ABO M	133	APACHE CORPORATION	NMLC067858	ABD
Carlsbad	3001522834	APD	96AIR1461ACBF	EMPIRE ABO M	141	APACHE CORPORATION	NMLC067858	ABD
Carlsbad	3001500840	APD	96AIR1242ACBF	EMPIRE ABO N	5	APACHE CORPORATION	NMNM031186	POW
Carlsbad	3001500843	APD	96AIR1255ACBF	EMPIRE ABO N	801	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001500855	APD	96AIR1253ACBF	EMPIRE ABO N	12	APACHE CORPORATION	NMLC065478B	ABD
Carlsbad	3001520141	APD	96AIR1363ACBF	EMPIRE ABO N	7	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001500825	APD	96AIR1236ACBF	EMPIRE ABO O	4	APACHE CORPORATION	NMNM29275	POW
Carlsbad	3001500835	APD	96AIR1237ACBF	EMPIRE ABO O	6	APACHE CORPORATION	NMLC070938	POW
Carlsbad	3001500841	APD	96AIR1243ACBF	EMPIRE ABO O	5	APACHE CORPORATION	NMLC070938	POW
Carlsbad	3001500844	APD	96AIR1245ACBF	EMPIRE ABO O	8	APACHE CORPORATION	NMNM025604	POW
Carlsbad	3001500845	APD	96AIR1246ACBF	EMPIRE ABO O	7	APACHE CORPORATION	NMNM025604	ABD
Carlsbad	3001500824	APD	96AIR1504ACBF	EMPIRE ABO P	4	APACHE CORPORATION	NMLC070678A	POW
Carlsbad	3001500839	APD	96AIR1241ACBF	EMPIRE ABO P	5	APACHE CORPORATION	NMLC070938	POW
Carlsbad	3001500898	APD	96AIR1265ACBF	EMPIRE ABO Q	9	APACHE CORPORATION	NMNM025602	POW
Carlsbad	3001500900	NON	ST96AIR1485ACB	EMPIRE ABO Q	6	APACHE CORPORATION	STATE	POW
Carlsbad	3001500912	NON	ST96AIR1487ACB	EMPIRE ABO Q	8	APACHE CORPORATION	STATE	POW
Carlsbad	3001500909	NON	ST96AIR1489ACB	EMPIRE ABO R	7	APACHE CORPORATION	STATE	POW
Carlsbad	3001500914	APD	96AIR1267ACBF	EMPIRE ABO R	3	APACHE CORPORATION	NMNM29276	ABD
Carlsbad	3001500904	NON	ST96AIR1491ACB	EMPIRE ABO S	6	APACHE CORPORATION	STATE	POW
Carlsbad	3001500905	NON	ST96AIR1490ACB	EMPIRE ABO S	5	APACHE CORPORATION	STATE	POW
Carlsbad	3001500917	APD	96AIR1268ACBF	EMPIRE ABO S	3	APACHE CORPORATION	NMNM29276	POW
Carlsbad	3001500919	APD	96AIR1269ACBF	EMPIRE ABO S	2	APACHE CORPORATION	NMNM29276	ABD
Carlsbad	3001539006	NON	ST12DCN0020ACB	EMPIRE ABO UNIT	407	APACHE CORPORATION	STATE	POW
Carlsbad	3001539009	NON	ST12DCN0017ACB	EMPIRE ABO UNIT	415	APACHE CORPORATION	STATE	TA
Carlsbad	3001539012	NON	ST12DCN0023ACB	EMPIRE ABO UNIT	420	APACHE CORPORATION	STATE	POW
Carlsbad	3001539019	NON	ST12DCN0019ACB	EMPIRE ABO UNIT	402	APACHE CORPORATION	STATE	POW
Carlsbad	3001539021	NON	ST12DCN0016ACB	EMPIRE ABO UNIT	411	APACHE CORPORATION	STATE	TA
Carlsbad	3001539054	NON	ST12DCN0025ACB	EMPIRE ABO UNIT	404	APACHE CORPORATION	STATE	POW
Carlsbad	3001539064	NON	ST12DCN0015ACB	EMPIRE ABO UNIT	403	APACHE CORPORATION	STATE	TA
Carlsbad	3001539401	NON	ST12LJ0003ACB	EMPIRE ABO UNIT	417	APACHE CORPORATION	STATE	TA
Carlsbad	3001534376	APD	05BH0091ACBF	GOLDFISH 17 FEDERAL	1	APACHE CORPORATION	NMNM074936	PGW
Carlsbad	3002507242	NON	FE96AIR0002AHO	H D SCHNECK	1	APACHE CORPORATION	FEE	POW
Carlsbad	3002504211	APD	96AIR7492AHOF	H.W. ANDREWS	3	APACHE CORPORATION	NMNM89874	PGW
Carlsbad	3002504228	APD	96AIR7493AHOF	H.W. ANDREWS	4	APACHE CORPORATION	NMNM89874	POW
Carlsbad	3002504229	APD	96AIR7494AHOF	H.W. ANDREWS	5	APACHE CORPORATION	NMNM89874	POW
Carlsbad	3002504230	APD	96AIR7495AHOF	H.W. ANDREWS	6	APACHE CORPORATION	NMNM89874	PGW
Carlsbad	3002504231	APD	96AIR7496AHOF	H.W. ANDREWS	8	APACHE CORPORATION	NMNM89874	POW
Carlsbad	3002525440	APD	96AIR7497AHOF	H.W. ANDREWS	14	APACHE CORPORATION	NMNM89874	POW
Carlsbad	3002533035	APD	96AIR7498AHOF	H.W. ANDREWS	15	APACHE CORPORATION	NMNM89874	PGW
Carlsbad	3002521621	APD	96AIR4418AHOF	HAWK A	6	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002526265	APD	96AIR4419AHOF	HAWK A	7	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002526967	APD	96AIR4420AHOF	HAWK A	8	APACHE CORPORATION	NMLC031741A	WIW
Carlsbad	3002527599	APD	96AIR4421AHOF	HAWK A	9	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002535803	APD	02AL0010AEHOF	HAWK A	10	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002535804	APD	02AL0011AEHOF	HAWK A	11	APACHE CORPORATION	NMLC031741A	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002535805	APD	02AL0012AEHOF	HAWK A	14	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002535872	APD	02A0068AHOF	HAWK A	12	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002535873	APD	02A0070AHOF	HAWK A	13	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002535874	APD	02A0073AHOF	HAWK A	15	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002535875	APD	02A0075AHOF	HAWK A	16	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002535951	APD	02LA0060AHOF	HAWK A	17	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002536339	APD	03LA0189AEHOF	HAWK A	19	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002538021	APD	06IMA0103AHOF	HAWK A	20	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002538441	APD	07CMR0263AHOF	HAWK A	25	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002538947	APD	08DLM0142AHOF	HAWK A	34	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002539852	APD	10CMR0149AHOF	HAWK A	27	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002540677	APD	12KMS0651AHOF	HAWK A	37	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002538127	APD	06CMR0145AHOF	HAWK A-4	4	APACHE CORPORATION	NMNM125795	POW
Carlsbad	3002536100	APD	03LA0040AHOF	HAWK A-5	2	APACHE CORPORATION	NMNM125795	POW
Carlsbad	3002537380	APD	05BH0035AHOF	HAWK A-5	3	APACHE CORPORATION	NMNM125795	POW
Carlsbad	3002538129	APD	06CMR0147AHOF	HAWK A-5	5	APACHE CORPORATION	NMNM125795	POW
Carlsbad	3002538948	APD	08DLM0140AHOF	HAWK A-5	7	APACHE CORPORATION	NMNM125795	POW
Carlsbad	3002539390	APD	09CMR0070AHOF	HAWK A-5	4	APACHE CORPORATION	NMNM125795	POW
Carlsbad	3002540459	APD	12BH0004AHOF	HAWK A-5	9	APACHE CORPORATION	NMNM125795	POW
Carlsbad	3002506435	APD	96AIR7522AHOF	HAWK B-1	12	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002509906	APD	96AIR7530AHOF	HAWK B-1	8	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002509907	APD	96AIR7533AHOF	HAWK B-1	6	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002520178	APD	96AIR7526AHOF	HAWK B-1	13	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002526601	APD	96AIR7524AHOF	HAWK B-1	16	APACHE CORPORATION	NMNM90161	PGW
Carlsbad	3002535795	APD	02LA0011AEHOF	HAWK B-1	18	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535796	APD	02LA0012AEHOF	HAWK B-1	19	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535797	APD	02AL0009AEHOF	HAWK B-1	24	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535798	APD	02LA0013AEHOF	HAWK B-1	25	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535799	APD	02AL0008AEHOF	HAWK B-1	26	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535806	APD	02LA0014AEHOF	HAWK B-1	27	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535876	APD	02A0047AHOF	HAWK B-1	20	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535877	APD	02A0049AHOF	HAWK B-1	21	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535878	APD	02A0051AHOF	HAWK B-1	22	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535879	APD	02A0053AHOF	HAWK B-1	23	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535880	APD	02A0061AHOF	HAWK B-1	28	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535881	APD	02A0063AHOF	HAWK B-1	30	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002535882	APD	02A0065AHOF	HAWK B-1	31	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536158	APD	03AL0044AEHOF	HAWK B-1	32	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536344	APD	03LA0190AEHOF	HAWK B-1	34	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536530	APD	04LA0007AEHOF	HAWK B-1	36	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536531	APD	04LA0005AEHOF	HAWK B-1	38	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536532	APD	04LA0006AEHOF	HAWK B-1	39	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536533	APD	03LA0309AEHOF	HAWK B-1	40	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536662	APD	04LA0003AEHOF	HAWK B-1	35	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536663	APD	04LA0002AEHOF	HAWK B-1	33	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536664	APD	03LA0310AEHOF	HAWK B-1	41	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536686	APD	04LA0004AEHOF	HAWK B-1	37	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002537997	APD	06CMR0092AHOF	HAWK B-1	51	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002537998	APD	06IMA0046AHOF	HAWK B-1	52	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538014	APD	06KMS0001AHOF	HAWK B-1	50	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538173	APD	06CMR0094AHOF	HAWK B-1	43	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538493	APD	07CMR0261AHOF	HAWK B-1	58	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538959	APD	08DLM0144AHOF	HAWK B-1	68	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002539511	APD	09CMR0165AHOF	HAWK B-1	55	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002540678	APD	12KMS0649AHOF	HAWK B-1	70	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002506452	APD	96AIR6327AHOF	HAWK B-10	3	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506455	APD	96AIR6324AHOF	HAWK B-10	5	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506457	APD	96AIR6322AHOF	HAWK B-10	7	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506458	APD	96AIR6323AHOF	HAWK B-10	6	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506475	APD	96AIR6329AHOF	HAWK B-10	1	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535637	APD	01AL0009AHOF	HAWK B-10	11	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506498	APD	96AIR6328AHOF	HAWK B-3	1	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506501	APD	01LA0194AHOF	HAWK B-3	9	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506504	APD	96AIR6325AHOF	HAWK B-3	4	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535227	APD	01MO0006AHOF	HAWK B-3	25	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535734	APD	01MO0008AHOF	HAWK B-3	26	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002538960	APD	08CMR0095AHOF	HAWK B-3	34	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002539510	APD	09CMR0168AHOF	HAWK B-3	33	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002540458	APD	12DLM0087AHOF	HAWK FEDERAL B-1	69	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3001543050	APD	14CQ0625ACBF	HUMMINGBIRD FEDERAL COM	7H	APACHE CORPORATION	NMLC031844	POW
Carlsbad	3001543051	APD	14CQ0627ACBF	HUMMINGBIRD FEDERAL COM	8H	APACHE CORPORATION	NMLC031844	POW
Carlsbad	3001543481	APD	15DLM0465ACBF	HUMMINGBIRD FEDERAL COM	16H	APACHE CORPORATION	NMLC031844	POW
Carlsbad	3001543482	APD	15DLM0467ACBF	HUMMINGBIRD FEDERAL COM	17H	APACHE CORPORATION	NMLC031844	POW
Carlsbad	3001542631	APD	14DLM2374ACBF	HUMMINGBIRD SOUTH FEDERAL COM	1H	APACHE CORPORATION	NMLC031844	POW
Carlsbad	3001542632	APD	14DLM2376ACBF	HUMMINGBIRD SOUTH FEDERAL COM	2H	APACHE CORPORATION	NMLC031844	POW
Carlsbad	3001530507	APD	99LA0428ACBF	KEN FEDERAL	2	APACHE CORPORATION	NMLC029020B	POW
Carlsbad	3001530150	APD	98EI0879ACBF	LAGO ROSA 4 FEDERAL	4	APACHE CORPORATION	NMNM29280	POW
Carlsbad	3002537236	APD	05LA0181AHOF	LEA COUNTY FEDERAL	2	APACHE CORPORATION	NMNM94867	POW
Carlsbad	3001530243	APD	98JA0644ACBF	LEE FEDERAL	1	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001530268	APD	98LA0024ACBF	LEE FEDERAL	2	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001530269	APD	98LA0022ACBF	LEE FEDERAL	3	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001530424	APD	98MO0003ACBF	LEE FEDERAL	6	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001530425	APD	98MO0015ACBF	LEE FEDERAL	13	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001530508	APD	98MO0017ACBF	LEE FEDERAL	12	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001530511	APD	98MO0011ACBF	LEE FEDERAL	10	APACHE CORPORATION	NMLC029395B	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001530598	APD	04LA0608AECBF	LEE FEDERAL	8	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001531952	APD	01LA0704ACBF	LEE FEDERAL	18	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001531962	APD	01LA0712ACBF	LEE FEDERAL	19	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532048	APD	01LA0740ACBF	LEE FEDERAL	15	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532049	APD	01LA0714ACBF	LEE FEDERAL	16	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532072	APD	02LA0936ACBF	LEE FEDERAL	14	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532073	APD	02LA0938ACBF	LEE FEDERAL	21	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532087	APD	02LA0987ACBF	LEE FEDERAL	20Y	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532296	APD	02LD0086ACBF	LEE FEDERAL	30	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532297	APD	02LD0088ACBF	LEE FEDERAL	31	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532321	APD	02LD0344ACBF	LEE FEDERAL	27	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532376	APD	02LD0423ACBF	LEE FEDERAL	29	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532648	APD	01LA0702ACBF	LEE FEDERAL	17	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532737	APD	03LA0246AECBF	LEE FEDERAL	11	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532738	APD	03AL0155AECBF	LEE FEDERAL	34	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532739	APD	03AL0151AECBF	LEE FEDERAL	36	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532740	APD	03AL0152AECBF	LEE FEDERAL	39	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532744	APD	03AL0100AECBF	LEE FEDERAL	35	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532745	APD	03AL0126AECBF	LEE FEDERAL	40	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001532769	APD	03AL0184AECBF	LEE FEDERAL	37	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001533029	APD	03LA0245AECBF	LEE FEDERAL	5	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001533214	APD	03LD0078ACBF	LEE FEDERAL	32	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001539223	APD	11CMR0164ACBF	LEE FEDERAL	42	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001539888	APD	12JLH0072ACBF	LEE FEDERAL	50	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001539889	APD	12JLH0068ACBF	LEE FEDERAL	52	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001539897	APD	12DLM0206ACBF	LEE FEDERAL	48	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001539915	APD	12KMS0434ACBF	LEE FEDERAL	46	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001539916	APD	12DLM0309ACBF	LEE FEDERAL	49	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540031	APD	12JLH0074ACBF	LEE FEDERAL	44	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540032	APD	12DLM0348ACBF	LEE FEDERAL	45	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540033	APD	12KMS0432ACBF	LEE FEDERAL	47	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540034	APD	11DLM0854AECBF	LEE FEDERAL	51	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540100	APD	12DLM0447ACBF	LEE FEDERAL	54	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540174	APD	12KMS0897ACBF	LEE FEDERAL	57	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540175	APD	12KMS0824ACBF	LEE FEDERAL	58	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540176	APD	12DLM0564ACBF	LEE FEDERAL	59	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540177	APD	12KMS0899ACBF	LEE FEDERAL	60	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540293	APD	12KMS0891ACBF	LEE FEDERAL	61	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540294	APD	12DLM0820ACBF	LEE FEDERAL	62	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540295	APD	12DLM0822ACBF	LEE FEDERAL	63	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001540730	APD	12KMS0895ACBF	LEE FEDERAL	56	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541109	APD	12KMS2767AECBF	LEE FEDERAL	65	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541110	APD	13DLM1612ACBF	LEE FEDERAL	66	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541111	APD	12KMS2770AECBF	LEE FEDERAL	69	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541112	APD	12KMS2769AECBF	LEE FEDERAL	70	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541113	APD	12KMS2764AECBF	LEE FEDERAL	73	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541253	APD	12KMS2765AECBF	LEE FEDERAL	72	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541347	APD	12KMS2768AECBF	LEE FEDERAL	67	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541348	APD	12KMS2763AECBF	LEE FEDERAL	71	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541414	APD	12KMS2784AECBF	LEE FEDERAL	75	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541421	APD	12KMS2789AECBF	LEE FEDERAL	74	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541551	APD	12KMS2782AECBF	LEE FEDERAL	76	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541843	APD	13KMS7213ACBF	LEE FEDERAL	88	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541844	APD	13DLM2050ACBF	LEE FEDERAL	92	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541901	APD	13DLM2067ACBF	LEE FEDERAL	84	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541902	APD	13DLM2065ACBF	LEE FEDERAL	83	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001541988	APD	14DLM2200ACBF	LEE FEDERAL	64	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001542188	APD	12BMW0513AECBF	LEE FEDERAL	68	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001542189	APD	12KMS2788AECBF	LEE FEDERAL	78	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001542190	APD	12KMS2794AECBF	LEE FEDERAL	79	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001542401	APD	14DLM2329ACBF	LEE FEDERAL	77	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001542402	APD	14KMS8095ACBF	LEE FEDERAL	80	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001543197	APD	15CQ0046ACBF	LEE FEDERAL	53	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001543268	APD	15ASB0115ACBF	LEE FEDERAL	43	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001543364	APD	15JLR0025ACBF	LEE FEDERAL	55	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3001543365	APD	15DLM0293ACBF	LEE FEDERAL	94	APACHE CORPORATION	NMLC029395B	POW
Carlsbad	3002506639	APD	96AIR4437AHOF	LOCKHART A 17	4	APACHE CORPORATION	NMLC032096A	PGW
Carlsbad	3002506637	APD	96AIR4430AHOF	LOCKHART A-17	2	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002536101	APD	03LA0038AHOF	LOCKHART A-17	6	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002536159	APD	03LA0047AEHOF	LOCKHART A-17	7	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002536160	APD	03LA0046AEHOF	LOCKHART A-17	8	APACHE CORPORATION	NMNM125794	POW
Carlsbad	3002536661	APD	03LA0307AEHOF	LOCKHART A-17	9	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002537379	APD	05BH0037AHOF	LOCKHART A-17	10	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002540478	APD	12DLM0055AHOF	LOCKHART B 12	12	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002540479	APD	12JLH0032AHOF	LOCKHART B 12	13	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002540345	APD	11CMR0101AEHOF	LOCKHART B 13A	14	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002506524	APD	96AIR4466AHOF	LOCKHART B-11	1	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002506525	APD	96AIR4467AHOF	LOCKHART B-11	3	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002542152	APD	13KMS2288AEHOF	LOCKHART B12	14	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002506540	APD	96AIR4477AHOF	LOCKHART B-12	5	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002506555	APD	96AIR4485AHOF	LOCKHART B-13 A	1	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002506558	APD	96AIR4487AHOF	LOCKHART B-13 A	4	APACHE CORPORATION	NMLC032096B	WDW
Carlsbad	3002528011	APD	96AIR4504AHOF	LOCKHART B-13 A	9	APACHE CORPORATION	NMNM125057	POW
Carlsbad	3002528131	APD	96AIR4508AHOF	LOCKHART B-13 A	10	APACHE CORPORATION	NMLC032096B	POW
Carlsbad	3002538759	APD	08DLM0052AHOF	LOCKHART B-24	1	APACHE CORPORATION	NMLC032096B	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001530144	APD	98JA0408ACBF	LOCO FEDERAL	1	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3001530145	APD	98JA0410ACBF	LOCO FEDERAL	2	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3001530146	APD	98JA0412ACBF	LOCO FEDERAL	3	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3001530147	APD	98JA0414ACBF	LOCO FEDERAL	4	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3001536164	APD	08DLM0120ACBF	LOCO FEDERAL	6	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3001536563	APD	08CMR0250ACBF	LOCO FEDERAL	5	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3001536638	APD	08TLC0435ACBF	LOCO FEDERAL	7	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3001540616	APD	12DLM046BACBF	LOCO FEDERAL	8	APACHE CORPORATION	NMNM106231	POW
Carlsbad	3002504563	APD	96AIR4392AHOF	MEYER B-8	4	APACHE CORPORATION	NMLC031740B	PGW
Carlsbad	3002532213	APD	96AIR4411AHOF	MEYER B-8	6	APACHE CORPORATION	NMLC031740B	PGW
Carlsbad	3002506339	NON	FE96AIR0573AHO	NEDU	615	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506340	NON	FE96AIR0637AHO	NEDU	115W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506341	NON	ST96AIR0575AHO	NEDU	215	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506348	NON	ST96AIR0672AHO	NEDU	324	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506350	NON	ST96AIR0644AHO	NEDU	221W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506351	NON	ST96AIR0670AHO	NEDU	224	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506352	NON	ST96AIR0580AHO	NEDU	321	APACHE CORPORATION	STATE	POW
Carlsbad	3002506353	NON	ST96AIR0581AHO	NEDU	319	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506354	NON	ST96AIR0582AHO	NEDU	121	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506355	NON	ST96AIR0583AHO	NEDU	223	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506356	NON	ST96AIR0584AHO	NEDU	222	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506357	NON	FE96AIR0665AHO	NEDU	120	APACHE CORPORATION	FEE	POW
Carlsbad	3002506358	NON	ST96AIR0585AHO	NEDU	220	APACHE CORPORATION	STATE	POW
Carlsbad	3002506360	NON	ST96AIR0586AHO	NEDU	123	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506364	NON	ST96AIR0587AHO	NEDU	122	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506365	NON	ST96AIR0588AHO	NEDU	318	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506366	NON	ST96AIR0589AHO	NEDU	320	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506367	NON	ST96AIR0546AHO	NEDU	311	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506368	NON	ST96AIR0547AHO	NEDU	213	APACHE CORPORATION	STATE	POW
Carlsbad	3002506370	NON	ST96AIR0548AHO	NEDU	313	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506372	NON	FE96AIR0667AHO	NEDU	322W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506375	NON	ST96AIR0647AHO	NEDU	315	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506376	NON	ST15LJ0898AHO	NEDU	371	APACHE CORPORATION	STATE	POW
Carlsbad	3002506381	NON	FE96AIR0640AHO	NEDU	211W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506385	NON	FE96AIR0557AHO	NEDU	208	APACHE CORPORATION	FEE	POW
Carlsbad	3002506386	NON	FE96AIR0559AHO	NEDU	104	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506388	NON	FE96AIR0590AHO	NEDU	301	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506390	APD	96AIR0516AHOF	NEDU	101	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506410	APD	96AIR0544AHOF	NEDU	106	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506446	NON	FE96AIR0593AHO	NEDU	408	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506449	APD	96AIR0514AHOF	NEDU	403	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506450	APD	96AIR0533AHOF	NEDU	405	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506451	APD	96AIR0513AHOF	NEDU	406	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506453	APD	96AIR0530AHOF	NEDU	410	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506454	APD	96AIR0534AHOF	NEDU	404	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506456	APD	96AIR0527AHOF	NEDU	407W	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506459	NON	ST96AIR0592AHO	NEDU	401	APACHE CORPORATION	STATE	POW
Carlsbad	3002506461	NON	ST96AIR0591AHO	NEDU	402	APACHE CORPORATION	STATE	POW
Carlsbad	3002506463	NON	ST96AIR0595AHO	NEDU	502	APACHE CORPORATION	STATE	POW
Carlsbad	3002506465	NON	ST96AIR0649AHO	NEDU	506W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506466	NON	FE02A0144AHO	NEDU	525	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506468	NON	ST96AIR0596AHO	NEDU	505	APACHE CORPORATION	STATE	POW
Carlsbad	3002506470	NON	ST96AIR0598AHO	NEDU	507	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506473	NON	ST96AIR0648AHO	NEDU	503W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506483	NON	ST96AIR0642AHO	NEDU	216W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506484	NON	ST96AIR0643AHO	NEDU	218	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506487	NON	ST96AIR0551AHO	NEDU	316	APACHE CORPORATION	STATE	POW
Carlsbad	3002506491	NON	ST96AIR0641AHO	NEDU	214W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506492	APD	96AIR0518AHOF	NEDU	212	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002506493	APD	96AIR0532AHOF	NEDU	305	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506494	APD	96AIR0525AHOF	NEDU	308	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506495	APD	96AIR0520AHOF	NEDU	110	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506496	APD	96AIR0519AHOF	NEDU	113	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506497	APD	96AIR0524AHOF	NEDU	310	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506499	APD	96AIR0528AHOF	NEDU	309W	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506502	APD	96AIR0526AHOF	NEDU	210	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506506	APD	96AIR0517AHOF	NEDU	204	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506507	APD	96AIR0529AHOF	NEDU	306	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506508	APD	96AIR0531AHOF	NEDU	209	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506509	APD	96AIR0523AHOF	NEDU	112	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506510	APD	96AIR0522AHOF	NEDU	109	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002506512	NON	FE96AIR0645AHO	NEDU	303W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506513	NON	FE96AIR0646AHO	NEDU	307W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506516	NON	FE96AIR0538AHO	NEDU	302	APACHE CORPORATION	FEE	POW
Carlsbad	3002506519	NON	FE96AIR0539AHO	NEDU	207	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506520	NON	FE96AIR0540AHO	NEDU	304	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506522	NON	FE96AIR0639AHO	NEDU	206W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506532	NON	FE96AIR0650AHO	NEDU	511W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506533	NON	FE96AIR0602AHO	NEDU	513	APACHE CORPORATION	FEE	POW
Carlsbad	3002506534	NON	FE96AIR0603AHO	NEDU	512	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506537	NON	FE96AIR0600AHO	NEDU	509	APACHE CORPORATION	FEE	POW
Carlsbad	3002506579	NON	FE96AIR0574AHO	NEDU	614	APACHE CORPORATION	FEE	POW
Carlsbad	3002506580	NON	FE96AIR0535AHO	NEDU	617	APACHE CORPORATION	FEE	POW
Carlsbad	3002506581	NON	FE96AIR0536AHO	NEDU	616	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506587	NON	ST96AIR0609AHO	NEDU	606	APACHE CORPORATION	STATE	WIW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002506588	NON	ST96AIR0652AHO	NEDU	610W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506589	NON	ST08KH0023AHO	NEDU	632	APACHE CORPORATION	STATE	POW
Carlsbad	3002506591	NON	ST96AIR0612AHO	NEDU	604	APACHE CORPORATION	STATE	POW
Carlsbad	3002506592	NON	FE96AIR0613AHO	NEDU	706	APACHE CORPORATION	FEE	POW
Carlsbad	3002506593	NON	FE96AIR0655AHO	NEDU	708W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506594	NON	FE96AIR0614AHO	NEDU	711	APACHE CORPORATION	FEE	POW
Carlsbad	3002506595	NON	FE96AIR0615AHO	NEDU	709	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506600	NON	FE96AIR0666AHO	NEDU	710	APACHE CORPORATION	FEE	POW
Carlsbad	3002506601	NON	FE96AIR0616AHO	NEDU	707	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506605	NON	FE09KH0016AHO	NEDU	723	APACHE CORPORATION	FEE	POW
Carlsbad	3002506610	NON	FE96AIR0605AHO	NEDU	609	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506613	NON	ST96AIR0651AHO	NEDU	605W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506727	NON	FE96AIR0617AHO	NEDU	806	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506729	NON	FE96AIR0657AHO	NEDU	807W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506730	NON	FE96AIR0631AHO	NEDU	809	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506735	NON	FE96AIR0627AHO	NEDU	802	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506736	NON	FE96AIR0537AHO	NEDU	805	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506737	NON	FE96AIR0676AHO	NEDU	820	APACHE CORPORATION	FEE	WSW
Carlsbad	3002506742	NON	FE96AIR0630AHO	NEDU	819	APACHE CORPORATION	FEE	WSWSI
Carlsbad	3002506745	NON	FE96AIR0561AHO	NEDU	907	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506747	NON	FE96AIR0661AHO	NEDU	909W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506748	NON	FE96AIR0562AHO	NEDU	903	APACHE CORPORATION	FEE	POW
Carlsbad	3002506754	NON	FE96AIR0662AHO	NEDU	904W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506755	NON	FE96AIR0563AHO	NEDU	905	APACHE CORPORATION	FEE	POW
Carlsbad	3002506757	NON	FE96AIR0584AHO	NEDU	908	APACHE CORPORATION	FEE	POW
Carlsbad	3002506759	NON	FE96AIR0543AHO	NEDU	912	APACHE CORPORATION	FEE	POW
Carlsbad	3002506760	NON	FE96AIR0628AHO	NEDU	911	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506761	NON	FE96AIR0545AHO	NEDU	914	APACHE CORPORATION	FEE	POW
Carlsbad	3002506765	NON	FE96AIR0622AHO	NEDU	817	APACHE CORPORATION	FEE	POW
Carlsbad	3002506766	NON	FE96AIR0623AHO	NEDU	915	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506767	NON	FE96AIR0624AHO	NEDU	916	APACHE CORPORATION	FEE	POW
Carlsbad	3002506768	NON	FE96AIR0625AHO	NEDU	917	APACHE CORPORATION	FEE	POW
Carlsbad	3002506769	NON	FE96AIR0632AHO	NEDU	816	APACHE CORPORATION	FEE	POW
Carlsbad	3002506770	NON	FE96AIR0618AHO	NEDU	810	APACHE CORPORATION	FEE	POW
Carlsbad	3002506771	NON	FE96AIR0659AHO	NEDU	811W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506772	NON	FE96AIR0619AHO	NEDU	813	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506773	NON	FE96AIR0620AHO	NEDU	812	APACHE CORPORATION	FEE	POW
Carlsbad	3002509897	APD	96AIR0521AHOF	NEDU	103	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002509911	NON	FE96AIR0570AHO	NEDU	702	APACHE CORPORATION	FEE	WIW
Carlsbad	3002509912	NON	ST96AIR0555AHO	NEDU	611	APACHE CORPORATION	STATE	WIW
Carlsbad	3002509914	NON	ST96AIR0607AHO	NEDU	602	APACHE CORPORATION	STATE	POW
Carlsbad	3002509916	NON	FE96AIR0565AHO	NEDU	701	APACHE CORPORATION	FEE	WIW
Carlsbad	3002509917	NON	FE96AIR0571AHO	NEDU	704	APACHE CORPORATION	FEE	WIW
Carlsbad	3002509918	NON	FE96AIR0654AHO	NEDU	703W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002509919	NON	ST96AIR0556AHO	NEDU	613	APACHE CORPORATION	STATE	WIW
Carlsbad	3002509928	NON	FE96AIR0568AHO	NEDU	801	APACHE CORPORATION	FEE	POW
Carlsbad	3002509929	NON	FE96AIR0656AHO	NEDU	803W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002509930	NON	FE96AIR0560AHO	NEDU	910	APACHE CORPORATION	FEE	POW
Carlsbad	3002509931	NON	FE96AIR0669AHO	NEDU	901	APACHE CORPORATION	FEE	POW
Carlsbad	3002509932	NON	FE96AIR0663AHO	NEDU	913W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002520218	NON	FE96AIR0601AHO	NEDU	510	APACHE CORPORATION	FEE	POW
Carlsbad	3002520315	NON	FE96AIR0572AHO	NEDU	107	APACHE CORPORATION	FEE	WIW
Carlsbad	3002520548	NON	ST96AIR0604AHO	NEDU	508	APACHE CORPORATION	STATE	POW
Carlsbad	3002520567	NON	ST96AIR0653AHO	NEDU	612	APACHE CORPORATION	STATE	WIW
Carlsbad	3002525008	NON	ST96AIR0636AHO	NEDU	105W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002526670	APD	96AIR0515AHOF	NEDU	111	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002526990	NON	FE96AIR0664AHO	NEDU	202	APACHE CORPORATION	FEE	WIW
Carlsbad	3002530913	NON	ST96AIR0674AHO	NEDU	514	APACHE CORPORATION	STATE	POW
Carlsbad	3002534249	NON	ST99A1835AHO	NEDU	225	APACHE CORPORATION	STATE	POW
Carlsbad	3002534365	APD	98A1284AHOF	NEDU	326	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534366	APD	98A1282AHOF	NEDU	327	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534367	APD	98A1280AHOF	NEDU	328	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534380	APD	98A1403AHOF	NEDU	226	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534410	NON	ST99A1824AHO	NEDU	619	APACHE CORPORATION	STATE	POW
Carlsbad	3002534411	NON	ST99A1833AHO	NEDU	231	APACHE CORPORATION	STATE	POW
Carlsbad	3002534412	NON	ST99A1834AHO	NEDU	230	APACHE CORPORATION	STATE	POW
Carlsbad	3002534413	NON	ST99A1825AHO	NEDU	519	APACHE CORPORATION	STATE	POW
Carlsbad	3002534414	NON	ST99A1830AHO	NEDU	330	APACHE CORPORATION	STATE	POW
Carlsbad	3002534415	NON	ST99A1837AHO	NEDU	126	APACHE CORPORATION	STATE	POW
Carlsbad	3002534424	NON	ST99A1844AHO	NEDU	124	APACHE CORPORATION	STATE	POW
Carlsbad	3002534425	NON	ST99A1842AHO	NEDU	125	APACHE CORPORATION	STATE	POW
Carlsbad	3002534426	NON	ST99A1836AHO	NEDU	127	APACHE CORPORATION	STATE	POW
Carlsbad	3002534427	NON	ST99A1845AHO	NEDU	228	APACHE CORPORATION	STATE	POW
Carlsbad	3002534428	APD	98A1709AHOF	NEDU	227	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534429	NON	ST99A1843AHO	NEDU	229	APACHE CORPORATION	STATE	POW
Carlsbad	3002534430	NON	ST99A1832AHO	NEDU	232	APACHE CORPORATION	STATE	POW
Carlsbad	3002534431	NON	ST99A2005AHO	NEDU	233	APACHE CORPORATION	STATE	POW
Carlsbad	3002534432	NON	ST99A1831AHO	NEDU	329	APACHE CORPORATION	STATE	POW
Carlsbad	3002534434	NON	ST99A1829AHO	NEDU	413	APACHE CORPORATION	STATE	POW
Carlsbad	3002534435	NON	ST99A1828AHO	NEDU	414	APACHE CORPORATION	STATE	POW
Carlsbad	3002534436	NON	ST99A1827AHO	NEDU	515	APACHE CORPORATION	STATE	POW
Carlsbad	3002534437	NON	ST99A1826AHO	NEDU	516	APACHE CORPORATION	STATE	POW
Carlsbad	3002534490	APD	98A1711AHOF	NEDU	412	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534595	NON	ST99A2450AHO	NEDU	924	APACHE CORPORATION	STATE	POW
Carlsbad	3002534597	NON	ST99A2576AHO	NEDU	825	APACHE CORPORATION	STATE	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002534598	NON	ST99A2575AHO	NEDU	522	APACHE CORPORATION	STATE	POW
Carlsbad	3002534599	NON	ST99A2595AHO	NEDU	521	APACHE CORPORATION	STATE	POW
Carlsbad	3002534601	NON	FE99A2573AHO	NEDU	132	APACHE CORPORATION	FEE	POW
Carlsbad	3002534602	NON	ST99A2531AHO	NEDU	520	APACHE CORPORATION	STATE	POW
Carlsbad	3002534609	APD	99LA0199AHOF	NEDU	131	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534617	APD	99LA0197AHOF	NEDU	130	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534649	NON	ST00A0006AHO	NEDU	622	APACHE CORPORATION	STATE	POW
Carlsbad	3002534650	NON	FE00A0056AHO	NEDU	620	APACHE CORPORATION	FEE	POW
Carlsbad	3002534651	NON	FE99A2697AHO	NEDU	128	APACHE CORPORATION	FEE	POW
Carlsbad	3002534654	NON	FE00A0005AHO	NEDU	823	APACHE CORPORATION	FEE	POW
Carlsbad	3002534655	NON	FE99A2695AHO	NEDU	926	APACHE CORPORATION	FEE	POW
Carlsbad	3002534656	NON	ST00A0054AHO	NEDU	618	APACHE CORPORATION	STATE	POW
Carlsbad	3002534657	NON	FE00A0055AHO	NEDU	623	APACHE CORPORATION	FEE	POW
Carlsbad	3002534658	NON	FE00A0066AHO	NEDU	833	APACHE CORPORATION	FEE	POW
Carlsbad	3002534660	NON	FE99A2696AHO	NEDU	716	APACHE CORPORATION	FEE	POW
Carlsbad	3002534661	APD	99LA0245AHOF	NEDU	415	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002534737	NON	FE00A0315AHO	NEDU	134	APACHE CORPORATION	FEE	POW
Carlsbad	3002534738	NON	FE00A0316AHO	NEDU	234	APACHE CORPORATION	FEE	POW
Carlsbad	3002534739	NON	ST00A0479AHO	NEDU	332	APACHE CORPORATION	STATE	POW
Carlsbad	3002534740	NON	FE00A0935AHO	NEDU	518	APACHE CORPORATION	FEE	POW
Carlsbad	3002534741	NON	FE00A1016AHO	NEDU	621	APACHE CORPORATION	FEE	POW
Carlsbad	3002534742	NON	FE01A0474AHO	NEDU	718	APACHE CORPORATION	FEE	POW
Carlsbad	3002534796	NON	FE00A0346AHO	NEDU	135	APACHE CORPORATION	FEE	POW
Carlsbad	3002534797	NON	FE00A0442AHO	NEDU	236	APACHE CORPORATION	FEE	POW
Carlsbad	3002534798	NON	FE00A0477AHO	NEDU	416	APACHE CORPORATION	FEE	POW
Carlsbad	3002534799	NON	ST00A0747AHO	NEDU	523	APACHE CORPORATION	STATE	POW
Carlsbad	3002534800	NON	FE01A0053AHO	NEDU	824	APACHE CORPORATION	FEE	POW
Carlsbad	3002534801	NON	FE00A0443AHO	NEDU	826	APACHE CORPORATION	FEE	POW
Carlsbad	3002534802	NON	FE00A0748AHO	NEDU	829	APACHE CORPORATION	FEE	POW
Carlsbad	3002534804	NON	FE01A0475AHO	NEDU	832	APACHE CORPORATION	FEE	POW
Carlsbad	3002534882	NON	ST00A1014AHO	NEDU	136	APACHE CORPORATION	STATE	POW
Carlsbad	3002534883	NON	ST00A1039AHO	NEDU	235	APACHE CORPORATION	STATE	POW
Carlsbad	3002534884	NON	FE00A0847AHO	NEDU	237	APACHE CORPORATION	FEE	POW
Carlsbad	3002534885	NON	FE00A0917AHO	NEDU	517	APACHE CORPORATION	FEE	POW
Carlsbad	3002534886	NON	FE00A0793AHO	NEDU	524	APACHE CORPORATION	FEE	POW
Carlsbad	3002534887	NON	FE00A0810AHO	NEDU	624	APACHE CORPORATION	FEE	POW
Carlsbad	3002534888	NON	FE01A0476AHO	NEDU	713	APACHE CORPORATION	FEE	POW
Carlsbad	3002534889	NON	FE00A0801AHO	NEDU	921	APACHE CORPORATION	FEE	POW
Carlsbad	3002534890	NON	FE00A0846AHO	NEDU	922	APACHE CORPORATION	FEE	POW
Carlsbad	3002534891	NON	FE00A0915AHO	NEDU	923	APACHE CORPORATION	FEE	POW
Carlsbad	3002534892	NON	FE01A0144AHO	NEDU	928	APACHE CORPORATION	FEE	POW
Carlsbad	3002534893	NON	FE01A0054AHO	NEDU	929	APACHE CORPORATION	FEE	POW
Carlsbad	3002534894	NON	FE00A1038AHO	NEDU	930	APACHE CORPORATION	FEE	POW
Carlsbad	3002534895	NON	FE00A1015AHO	NEDU	931	APACHE CORPORATION	FEE	POW
Carlsbad	3002534896	NON	FE00A0936AHO	NEDU	932	APACHE CORPORATION	FEE	POW
Carlsbad	3002534904	NON	FE00A0916AHO	NEDU	925	APACHE CORPORATION	FEE	POW
Carlsbad	3002534938	APD	00LA0050AHOF	NEDU	129	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535266	NON	FE01A0229AHO	NEDU	828	APACHE CORPORATION	FEE	POW
Carlsbad	3002535267	NON	FE01A0228AHO	NEDU	835	APACHE CORPORATION	FEE	POW
Carlsbad	3002535268	NON	FE01A0477AHO	NEDU	927	APACHE CORPORATION	FEE	POW
Carlsbad	3002535271	NON	FE02A0007AHO	NEDU	625	APACHE CORPORATION	FEE	POW
Carlsbad	3002535272	NON	FE01A0393AHO	NEDU	714	APACHE CORPORATION	FEE	POW
Carlsbad	3002535273	NON	FE01A0479AHO	NEDU	715	APACHE CORPORATION	FEE	POW
Carlsbad	3002535274	NON	FE01A0386AHO	NEDU	717	APACHE CORPORATION	FEE	POW
Carlsbad	3002535275	NON	FE01A0478AHO	NEDU	822	APACHE CORPORATION	FEE	POW
Carlsbad	3002535276	NON	FE01A0336AHO	NEDU	827	APACHE CORPORATION	FEE	POW
Carlsbad	3002535403	NON	ST01A0443AHO	NEDU	238	APACHE CORPORATION	STATE	POW
Carlsbad	3002535404	NON	ST01A0444AHO	NEDU	333	APACHE CORPORATION	STATE	POW
Carlsbad	3002535405	NON	ST02A0006AHO	NEDU	334	APACHE CORPORATION	STATE	POW
Carlsbad	3002535406	NON	ST02A0005AHO	NEDU	335	APACHE CORPORATION	STATE	POW
Carlsbad	3002535468	NON	ST01A0385AHO	NEDU	140	APACHE CORPORATION	STATE	POW
Carlsbad	3002535469	NON	ST01A0391AHO	NEDU	141	APACHE CORPORATION	STATE	POW
Carlsbad	3002535470	NON	ST01A0392AHO	NEDU	142	APACHE CORPORATION	STATE	POW
Carlsbad	3002535545	APD	01MO0012AHOF	NEDU	417	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535557	APD	01MO0010AHOF	NEDU	137	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535609	APD	01DG0152AHOF	NEDU	138	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535610	APD	01DG0150AHOF	NEDU	139	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002535902	NON	ST03A0019AHO	NEDU	144	APACHE CORPORATION	STATE	POW
Carlsbad	3002535903	NON	ST03A0021AHO	NEDU	145	APACHE CORPORATION	STATE	WIW
Carlsbad	3002535904	NON	FE03A0020AHO	NEDU	240	APACHE CORPORATION	FEE	WIW
Carlsbad	3002535944	APD	02LD0064AHOF	NEDU	143	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002536366	NON	ST06KH0007AHO	NEDU	418	APACHE CORPORATION	STATE	POW
Carlsbad	3002536367	NON	ST06KH0008AHO	NEDU	419	APACHE CORPORATION	STATE	POW
Carlsbad	3002536802	NON	FE06DAP0433AHO	NEDU	837	APACHE CORPORATION	FEE	POW
Carlsbad	3002536803	NON	ST06KH0024AHO	NEDU	933	APACHE CORPORATION	STATE	POW
Carlsbad	3002536804	NON	ST06DAP0432AHO	NEDU	626	APACHE CORPORATION	STATE	POW
Carlsbad	3002536805	NON	FE06KH0020AHO	NEDU	719	APACHE CORPORATION	FEE	POW
Carlsbad	3002536806	NON	ST06KH0023AHO	NEDU	720	APACHE CORPORATION	STATE	POW
Carlsbad	3002536807	NON	FE06KH0021AHO	NEDU	836	APACHE CORPORATION	FEE	POW
Carlsbad	3002536808	NON	FE06KH0006AHO	NEDU	336	APACHE CORPORATION	FEE	POW
Carlsbad	3002536809	NON	FE06KH0022AHO	NEDU	526	APACHE CORPORATION	FEE	POW
Carlsbad	3002537026	NON	FE06KH0005AHO	NEDU	421	APACHE CORPORATION	FEE	POW
Carlsbad	3002537028	NON	FE05AL0003AEHO	NEDU	420	APACHE CORPORATION	FEE	POW
Carlsbad	3002537029	NON	FE06KH0019AHO	NEDU	627	APACHE CORPORATION	FEE	POW
Carlsbad	3002537033	NON	FE06KH0012AHO	NEDU	838	APACHE CORPORATION	FEE	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002537034	NON	FE06KH0013AHO	NEDU	839	APACHE CORPORATION	FEE	POW
Carlsbad	3002537223	NON	ST06KH0011AHO	NEDU	628	APACHE CORPORATION	STATE	POW
Carlsbad	3002537237	NON	FE06KH0015AHO	NEDU	934	APACHE CORPORATION	FEE	POW
Carlsbad	3002537238	NON	FE06KH0018AHO	NEDU	629	APACHE CORPORATION	FEE	POW
Carlsbad	3002537242	NON	ST06KH0017AHO	NEDU	527	APACHE CORPORATION	STATE	POW
Carlsbad	3002537243	NON	FE06KH0016AHO	NEDU	721	APACHE CORPORATION	FEE	POW
Carlsbad	3002537244	NON	FE06KH0014AHO	NEDU	840	APACHE CORPORATION	FEE	POW
Carlsbad	3002537249	NON	FE06KH0010AHO	NEDU	529	APACHE CORPORATION	FEE	POW
Carlsbad	3002537444	NON	ST06KH0009AHO	NEDU	422	APACHE CORPORATION	STATE	POW
Carlsbad	3002537614	NON	FE06KH0030AHO	NEDU	935	APACHE CORPORATION	FEE	POW
Carlsbad	3002537618	NON	FE06DAP0541AHO	NEDU	146	APACHE CORPORATION	FEE	POW
Carlsbad	3002537619	NON	FE06KH0028AHO	NEDU	843	APACHE CORPORATION	FEE	POW
Carlsbad	3002537673	NON	FE06KH0027AHO	NEDU	528	APACHE CORPORATION	FEE	POW
Carlsbad	3002537677	NON	FE06KH0025AHO	NEDU	339	APACHE CORPORATION	FEE	POW
Carlsbad	3002537678	NON	FE06KH0031AHO	NEDU	337	APACHE CORPORATION	FEE	POW
Carlsbad	3002537712	NON	ST06KH0026AHO	NEDU	338	APACHE CORPORATION	STATE	POW
Carlsbad	3002537724	NON	FE06KH0029AHO	NEDU	630	APACHE CORPORATION	FEE	POW
Carlsbad	3002537728	NON	FE07KH0052AHO	NEDU	424	APACHE CORPORATION	FEE	POW
Carlsbad	3002537729	NON	FE07KH0039AHO	NEDU	530	APACHE CORPORATION	FEE	POW
Carlsbad	3002537875	APD	06DCN0019AHOF	NEDU	242	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002537876	APD	06DCN0020AHOF	NEDU	423	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002538062	NON	ST07KH0050AHO	NEDU	245	APACHE CORPORATION	STATE	POW
Carlsbad	3002538152	NON	FE07KH0049AHO	NEDU	243	APACHE CORPORATION	FEE	POW
Carlsbad	3002538153	NON	ST07KH0054AHO	NEDU	340	APACHE CORPORATION	STATE	POW
Carlsbad	3002538154	NON	FE07KH0051AHO	NEDU	341	APACHE CORPORATION	FEE	POW
Carlsbad	3002538155	NON	FE07KH0053AHO	NEDU	841	APACHE CORPORATION	FEE	POW
Carlsbad	3002538507	NON	ST08KH0017AHO	NEDU	345	APACHE CORPORATION	STATE	POW
Carlsbad	3002538508	NON	ST08KH0016AHO	NEDU	247	APACHE CORPORATION	STATE	POW
Carlsbad	3002538526	NON	FE07KH0048AHO	NEDU	241	APACHE CORPORATION	FEE	POW
Carlsbad	3002538532	NON	FE08KH0018AHO	NEDU	532	APACHE CORPORATION	FEE	POW
Carlsbad	3002538533	NON	ST08KH0019AHO	NEDU	538	APACHE CORPORATION	STATE	POW
Carlsbad	3002538534	NON	FE08KH0020AHO	NEDU	852	APACHE CORPORATION	FEE	POW
Carlsbad	3002538535	NON	FE08KH0021AHO	NEDU	940	APACHE CORPORATION	FEE	POW
Carlsbad	3002538762	APD	08DLM0050AHOF	NEDU	147	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002538893	NON	ST09KH0020AHO	NEDU	150	APACHE CORPORATION	STATE	POW
Carlsbad	3002538894	NON	ST09KH0019AHO	NEDU	151	APACHE CORPORATION	STATE	POW
Carlsbad	3002538899	NON	ST09KH0018AHO	NEDU	244	APACHE CORPORATION	STATE	POW
Carlsbad	3002538900	NON	ST09KH0017AHO	NEDU	252	APACHE CORPORATION	STATE	POW
Carlsbad	3002539046	NON	FE11DAP0122AHO	NEDU	944	APACHE CORPORATION	FEE	POW
Carlsbad	3002539439	APD	09TLC0019AHOF	NEDU	154	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002539440	APD	09DLM0075AHOF	NEDU	158	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002539583	NON	FE11DAP0120AHO	NEDU	348	APACHE CORPORATION	FEE	POW
Carlsbad	3002539584	NON	FE11DAP0121AHO	NEDU	945	APACHE CORPORATION	FEE	POW
Carlsbad	3002539588	NON	FE11DAP0118AHO	NEDU	634	APACHE CORPORATION	FEE	POW
Carlsbad	3002539914	NON	FE12LJ0031AHO	NEDU	163	APACHE CORPORATION	FEE	POW
Carlsbad	3002539915	NON	ST12LJ0032AHO	NEDU	165	APACHE CORPORATION	STATE	WIW
Carlsbad	3002539916	NON	ST12LJ0033AHO	NEDU	166	APACHE CORPORATION	STATE	POW
Carlsbad	3002539917	NON	ST12LJ0034AHO	NEDU	167	APACHE CORPORATION	STATE	POW
Carlsbad	3002539918	NON	ST12LJ0035AHO	NEDU	168W	APACHE CORPORATION	STATE	WIW
Carlsbad	3002540490	NON	ST12LJ0051AHO	NEDU	192	APACHE CORPORATION	STATE	POW
Carlsbad	3002540491	NON	ST12LJ0050AHO	NEDU	148	APACHE CORPORATION	STATE	POW
Carlsbad	3002540497	NON	FE13LJ0052AHO	NEDU	159	APACHE CORPORATION	FEE	POW
Carlsbad	3002540498	NON	FE13LJ0053AHO	NEDU	160	APACHE CORPORATION	FEE	POW
Carlsbad	3002540499	NON	FE13LJ0055AHO	NEDU	282	APACHE CORPORATION	FEE	POW
Carlsbad	3002540516	NON	FE13LJ0054AHO	NEDU	175	APACHE CORPORATION	FEE	POW
Carlsbad	3002540526	APD	12DLM0179AHOF	NEDU	164	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002540553	NON	FE13LJ0057AHO	NEDU	171	APACHE CORPORATION	FEE	POW
Carlsbad	3002540554	NON	FE13LJ0056AHO	NEDU	173	APACHE CORPORATION	FEE	POW
Carlsbad	3002540696	APD	12KMS0647AHOF	NEDU	157W	APACHE CORPORATION	NMNM2512	WIW
Carlsbad	3002540779	NON	FE13LJ0060AHO	NEDU	268	APACHE CORPORATION	FEE	POW
Carlsbad	3002540785	NON	FE13LJ0062AHO	NEDU	353	APACHE CORPORATION	FEE	POW
Carlsbad	3002540787	NON	FE13LJ0061AHO	NEDU	366	APACHE CORPORATION	FEE	POW
Carlsbad	3002540788	NON	ST13LJ0063AHO	NEDU	367	APACHE CORPORATION	STATE	POW
Carlsbad	3002540789	NON	ST13LJ0077AHO	NEDU	428	APACHE CORPORATION	STATE	POW
Carlsbad	3002540824	NON	FE13LJ0064AHO	NEDU	267	APACHE CORPORATION	FEE	POW
Carlsbad	3002540846	NON	FE14LJ0087AHO	NEDU	174W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002540847	NON	FE14LJ0098AHO	NEDU	172W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002540848	NON	FE14LJ0088AHO	NEDU	176W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002540849	NON	FE14LJ0089AHO	NEDU	263W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002540850	NON	FE14LJ0085AHO	NEDU	153W	APACHE CORPORATION	FEE	WIW
Carlsbad	3002540851	NON	ST13LJ0078AHO	NEDU	427	APACHE CORPORATION	STATE	POW
Carlsbad	3002540903	APD	12KMS0880AHOF	NEDU	177	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002540904	APD	12KMS0882AHOF	NEDU	190	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002541051	NON	FE13LJ0079AHO	NEDU	364	APACHE CORPORATION	FEE	POW
Carlsbad	3002541155	NON	ST14LJ0083AHO	NEDU	564	APACHE CORPORATION	STATE	POW
Carlsbad	3002541156	NON	FE14LJ0092AHO	NEDU	566	APACHE CORPORATION	FEE	POW
Carlsbad	3002541157	NON	FE14LJ0081AHO	NEDU	567	APACHE CORPORATION	FEE	POW
Carlsbad	3002541159	NON	FE14LJ0090AHO	NEDU	284	APACHE CORPORATION	FEE	POW
Carlsbad	3002541160	NON	FE14LJ0099AHO	NEDU	285	APACHE CORPORATION	FEE	POW
Carlsbad	3002541161	NON	ST14LJ0082AHO	NEDU	562	APACHE CORPORATION	STATE	POW
Carlsbad	3002541162	NON	ST14LJ0086AHO	NEDU	563	APACHE CORPORATION	STATE	POW
Carlsbad	3002541168	NON	FE14LJ0091AHO	NEDU	565	APACHE CORPORATION	FEE	POW
Carlsbad	3002541258	APD	13KMS1472AHOF	NEDU	429	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002541272	APD	13DLM0806AHOF	NEDU	269	APACHE CORPORATION	NMNM2512	POW
Carlsbad	3002541275	NON	FE14LJ0105AHO	NEDU	650	APACHE CORPORATION	FEE	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status	
Carlsbad	3002541276	NON	FE14LJ0116AHO	NEDU	726	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541277	NON	FE14LJ0106AHO	NEDU	722	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541278	NON	FE14LJ0115AHO	NEDU	727	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541279	NON	FE14LJ0111AHO	NEDU	848	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541280	NON	FE14LJ0113AHO	NEDU	965	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541285	NON	FE14LJ0107AHO	NEDU	651	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541286	APD	13DLM0911AHOF	NEDU	355	APACHE CORPORATION	NMNM2512	POW	
Carlsbad	3002541287	APD	13KMS1459AHOF	NEDU	278	APACHE CORPORATION	NMNM2512	POW	
Carlsbad	3002541336	NON	FE14LJ0108AHO	NEDU	844	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541337	NON	FE14LJ0122AHO	NEDU	846	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541338	NON	FE14LJ0109AHO	NEDU	851	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541339	NON	FE14LJ0110AHO	NEDU	863	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541357	NON	FE14LJ0112AHO	NEDU	938	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541576	NON	FE14LJ0200AHO	NEDU	411	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541577	NON	FE14LJ0190AHO	NEDU	433	APACHE CORPORATION	FEE	POW	
Carlsbad	3002541583	NON	ST14LJ0197AHO	NEDU	661	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541584	NON	ST14LJ0198AHO	NEDU	662	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541585	NON	ST14LJ0199AHO	NEDU	663	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541587	NON	ST14LJ0192AHO	NEDU	539	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541588	NON	ST14LJ0193AHO	NEDU	540	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541598	NON	ST14LJ0195AHO	NEDU	558	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541600	NON	ST14LJ0194AHO	NEDU	544	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541601	NON	ST14LJ0191AHO	NEDU	536	APACHE CORPORATION	STATE	POW	
Carlsbad	3002541618	NON	FE14LJ0196AHO	NEDU	635	APACHE CORPORATION	FEE	POW	
Carlsbad	3001532986	APD	03LD0082ACBF	O D FEDERAL	2	APACHE CORPORATION	NMNM29279	POW	
Carlsbad	3001532995	APD	03LD0080ACBF	O D FEDERAL	1	APACHE CORPORATION	NMNM29279	POW	
Carlsbad	3001534462	APD	06LA0864ACBF	O D FEDERAL	3	APACHE CORPORATION	NMNM29279	POW	
Carlsbad	3002534634	APD	99LA0207AHOF	PALL MALL	1	APACHE CORPORATION	NMNM80650	POW	
Carlsbad	3002539530	APD	09BH0111AHOF	PALL MALL	2	APACHE CORPORATION	NMNM80650	POW	
Carlsbad	3002536962	APD	05LA0008AHOF	PLOW BOY FED	1	APACHE CORPORATION	NMNM14812	POW	
Carlsbad	3001530248	APD	98JA0652ACBF	RANDY FEDERAL	1	APACHE CORPORATION	NMLC029020E	POW	
Carlsbad	3001530249	APD	98JA0654ACBF	RANDY FEDERAL	2	APACHE CORPORATION	NMLC029020E	POW	
Carlsbad	3001530251	APD	98JA0658ACBF	RANDY FEDERAL	4	APACHE CORPORATION	NMLC029020E	POW	
Carlsbad	3001536264	APD	08CMR0142ACBF	RANDY FEDERAL	7	APACHE CORPORATION	NMLC029020E	POW	
Carlsbad	3001536361	APD	08DLM0295ACBF	RANDY FEDERAL	6	APACHE CORPORATION	NMLC029020E	POW	
Carlsbad	3001530143	APD	98JA0361ACBF	RED FEDERAL	2	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001530232	APD	98JA0600ACBF	RED FEDERAL	3	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001530698	APD	99LA0886ACBF	RED FEDERAL	4	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001530792	APD	00LA0034ACBF	RED FEDERAL	1	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001536163	APD	08DLM0128ACBF	RED FEDERAL	5	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001536740	APD	08BH0181ACBF	RED FEDERAL	7	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001536867	APD	08CMR0357ACBF	RED FEDERAL	8	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001537519	APD	10DLM0213ACBF	RED FEDERAL	6	APACHE CORPORATION	NMLC060527	POW	
Carlsbad	3001529802	APD	98EI0518ACBF	RED LAKE 3 FEDERAL	2	APACHE CORPORATION	NMLC028805B	POW	
Carlsbad	3002527653	APD	96AIR6482AHOF	SIMS FEDERAL	1	APACHE CORPORATION	NMNM43739	POW	
Carlsbad	3002536618	NON	ST07AS0095AHO	STATE C TRACT 12	16	APACHE CORPORATION	STATE	POW	NMNM111017
Carlsbad	3002536617	NON	ST07AS0092AHO	STATE DA	9	APACHE CORPORATION	STATE	POW	NMNM111016
Carlsbad	3002509326	APD	96AIR4228AHOF	STEVENS B-12	4	APACHE CORPORATION	NMLC030556B	PGW	
Carlsbad	3002509331	APD	96AIR4234AHOF	STEVENS B-12	10	APACHE CORPORATION	NMLC030556B	PGW	
Carlsbad	3002522073	APD	96AIR4241AHOF	STEVENS B-7	18	APACHE CORPORATION	NMLC030556B	POW	
Carlsbad	3001534087	APD	05LA0505ACBF	STRAIGHT LINE FEDERAL	1	APACHE CORPORATION	NMLC031844	POW	
Carlsbad	3001535056	APD	06CMR0214ACBF	TEA FEDERAL	1-H	APACHE CORPORATION	NMLC029548A	POW	
Carlsbad	3001544436	APD	10400003537	THUNDERBIRD DEVELOPMENT UNIT	5H	APACHE CORPORATION	NMLC060325	POW	
Carlsbad	3001520142	APD	10DLM0202ACBF	TONY FEDERAL	32	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530244	APD	98JA0646ACBF	TONY FEDERAL	10	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530377	APD	98LA0242ACBF	TONY FEDERAL	4	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530378	APD	98LA0244ACBF	TONY FEDERAL	5	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530381	APD	98LA0250ACBF	TONY FEDERAL	1	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530382	APD	98LA0252ACBF	TONY FEDERAL	2	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530383	APD	98LA0248ACBF	TONY FEDERAL	8	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530384	APD	98LA0246ACBF	TONY FEDERAL	9	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530428	APD	98LA0361ACBF	TONY FEDERAL	7	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530470	APD	98LA0414ACBF	TONY FEDERAL	3	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001530721	APD	99LA0992ACBF	TONY FEDERAL	6Y	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001531057	APD	00LA0282ACBF	TONY FEDERAL	11	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001531083	APD	00LA0337ACBF	TONY FEDERAL	14	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001531084	APD	00LA0339ACBF	TONY FEDERAL	15	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001531253	APD	00LA0485ACBF	TONY FEDERAL	12	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001531254	APD	00MO0044ACBF	TONY FEDERAL	16	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001531328	APD	00LA0483ACBF	TONY FEDERAL	13	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001531577	APD	00LA0481ACBF	TONY FEDERAL	18	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001532195	APD	02JA0161ACBF	TONY FEDERAL	17	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001532661	APD	03AL0099AECBF	TONY FEDERAL	24	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001532753	APD	03LA0343AECBF	TONY FEDERAL	27	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001532802	APD	03LA0341AECBF	TONY FEDERAL	19	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001533000	APD	03LA0298AECBF	TONY FEDERAL	28	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001533085	APD	03LA0297AECBF	TONY FEDERAL	25	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001533388	APD	03LA0247AECBF	TONY FEDERAL	23	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001533484	APD	03AL0171AECBF	TONY FEDERAL	22	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001533568	APD	03LA0361AECBF	TONY FEDERAL	20	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001533718	APD	03LA0342AECBF	TONY FEDERAL	26	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001533941	APD	03AL0097AECBF	TONY FEDERAL	21	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001539224	APD	11CMR0156ACBF	TONY FEDERAL	33	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001539225	APD	11CMR0160ACBF	TONY FEDERAL	35	APACHE CORPORATION	NMLC029395A	POW	
Carlsbad	3001539342	APD	11CMR0158ACBF	TONY FEDERAL	34	APACHE CORPORATION	NMLC029395A	POW	

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3001539836	APD	12JLH0007ACBF	TONY FEDERAL	36	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540171	APD	12KMS0856ACBF	TONY FEDERAL	37	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540172	APD	12KMS0858ACBF	TONY FEDERAL	39	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540173	APD	12KMS0860ACBF	TONY FEDERAL	40	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540387	APD	12KMS0893ACBF	TONY FEDERAL	42	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540388	APD	12KMS1365ACBF	TONY FEDERAL	43	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540389	APD	12KMS1361ACBF	TONY FEDERAL	44	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540390	APD	12KMS1363ACBF	TONY FEDERAL	45	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540391	APD	12KMS1367ACBF	TONY FEDERAL	46	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001540471	APD	12DLM1036ACBF	TONY FEDERAL	38	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001541319	APD	13DLM1780ACBF	TONY FEDERAL	55	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001541320	APD	13DLM1778ACBF	TONY FEDERAL	41	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001541323	APD	12KMS2777AECBF	TONY FEDERAL	58	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001541419	APD	13DLM1812ACBF	TONY FEDERAL	56	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001541422	APD	13KMS5489ACBF	TONY FEDERAL	52	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001541989	APD	14LMG0201ACBF	TONY FEDERAL	48	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001541990	APD	14DLM2206ACBF	TONY FEDERAL	51	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001542000	APD	14DLM2208ACBF	TONY FEDERAL	54	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001542594	APD	13KMS5164ACBF	TONY FEDERAL	47	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001542626	APD	14KMS8093ACBF	TONY FEDERAL	60	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001543468	APD	15ASB0139ACBF	TONY FEDERAL	49	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001543469	APD	15ASB0145ACBF	TONY FEDERAL	57	APACHE CORPORATION	NMLC029395A	POW
Carlsbad	3001530215	APD	98LD0101ACBF	TYLER FEDERAL	1	APACHE CORPORATION	NMLC029342C	POW
Carlsbad	3001530220	APD	98LD0103ACBF	TYLER FEDERAL	2	APACHE CORPORATION	NMLC029342C	POW
Carlsbad	3001536159	APD	08DLM0122ACBF	TYLER FEDERAL	3	APACHE CORPORATION	NMLC029342C	POW
Carlsbad	3002539839	APD	10BH0089AHOF	USA-HOWSE	2	APACHE CORPORATION	NMNM17252	POW
Carlsbad	3001530135	APD	98JA0406ACBF	VERMILLION 3 FEDERAL	4	APACHE CORPORATION	NMLC055465B	POW
Carlsbad	3001530151	APD	98EI0877ACBF	VERMILLION 3 FEDERAL	3	APACHE CORPORATION	NMLC055465B	POW
Carlsbad	3002507885	APD	96AIR5150AHOF	WARREN	11	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002526843	APD	96AIR5147AHOF	WARREN	82	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002534362	APD	98A1286AHOF	WARREN	146	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002507830	APD	96AIR3716AHOF	WARREN UNIT	27	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002507831	APD	96AIR3717AHOF	WARREN UNIT	28	APACHE CORPORATION	NMLC031670B	WIW
Carlsbad	3002507841	APD	96AIR3719AHOF	WARREN UNIT	9	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002507842	APD	96AIR3752AHOF	WARREN UNIT	26	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002507844	APD	96AIR3739AHOF	WARREN UNIT	8	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002507852	APD	96AIR3708AHOF	WARREN UNIT	3	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002507855	APD	96AIR3713AHOF	WARREN UNIT	23	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002507875	APD	96AIR3745AHOF	WARREN UNIT	15	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002507876	APD	96AIR3746AHOF	WARREN UNIT	16	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002507877	APD	96AIR3747AHOF	WARREN UNIT	17	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002507879	APD	96AIR3751AHOF	WARREN UNIT	21	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002507880	APD	96AIR3742AHOF	WARREN UNIT	12	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002507881	APD	96AIR3743AHOF	WARREN UNIT	13	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002507882	APD	96AIR3750AHOF	WARREN UNIT	20	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002507883	APD	96AIR3748AHOF	WARREN UNIT	18	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002507889	APD	96AIR3744AHOF	WARREN UNIT	14	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002524732	APD	96AIR3753AHOF	WARREN UNIT	30	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002524781	APD	96AIR3754AHOF	WARREN UNIT	31	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002525043	APD	96AIR3755AHOF	WARREN UNIT	32	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002525044	APD	96AIR3756AHOF	WARREN UNIT	33	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002525124	APD	96AIR3722AHOF	WARREN UNIT	35	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002525152	APD	96AIR3759AHOF	WARREN UNIT	36	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002525153	APD	96AIR3760AHOF	WARREN UNIT	37	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002525189	APD	96AIR3761AHOF	WARREN UNIT	38	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002525203	APD	96AIR3762AHOF	WARREN UNIT	39	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002525204	APD	96AIR3763AHOF	WARREN UNIT	40	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002525245	APD	96AIR3764AHOF	WARREN UNIT	41	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002525360	APD	96AIR3695AHOF	WARREN UNIT	43	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002525362	APD	96AIR3765AHOF	WARREN UNIT	42	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002525459	APD	96AIR3767AHOF	WARREN UNIT	44	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002525488	APD	96AIR3782AHOF	WARREN UNIT	59	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002525562	APD	96AIR3769AHOF	WARREN UNIT	46	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002525567	APD	96AIR3768AHOF	WARREN UNIT	45	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002525828	APD	96AIR3705AHOF	WARREN UNIT	47	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002525850	APD	96AIR3696AHOF	WARREN UNIT	50	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002525851	APD	96AIR3771AHOF	WARREN UNIT	48	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002525852	APD	96AIR3772AHOF	WARREN UNIT	49	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002525853	APD	96AIR3778AHOF	WARREN UNIT	55	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002525854	APD	96AIR3697AHOF	WARREN UNIT	51	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002525916	APD	96AIR3776AHOF	WARREN UNIT	53	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002525917	APD	96AIR3779AHOF	WARREN UNIT	56	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002526125	APD	96AIR3777AHOF	WARREN UNIT	54	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002526203	APD	96AIR3780AHOF	WARREN UNIT	57	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002526204	APD	96AIR3699AHOF	WARREN UNIT	62	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002526205	APD	96AIR3700AHOF	WARREN UNIT	63	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002526206	APD	96AIR3786AHOF	WARREN UNIT	64	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002526210	APD	96AIR3788AHOF	WARREN UNIT	68	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002526313	APD	96AIR3791AHOF	WARREN UNIT	76	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002526374	APD	96AIR3701AHOF	WARREN UNIT	77	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002526511	APD	96AIR3702AHOF	WARREN UNIT	78	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002526632	APD	96AIR3794AHOF	WARREN UNIT	79	APACHE CORPORATION	NMLC063458	WIW
Carlsbad	3002526642	APD	96AIR3795AHOF	WARREN UNIT	80	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002526762	APD	96AIR3703AHOF	WARREN UNIT	83	APACHE CORPORATION	NMLC031695A	WSW
Carlsbad	3002526840	APD	96AIR3783AHOF	WARREN UNIT	61	APACHE CORPORATION	NMLC031670B	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002527092	APD	96AIR3706AHOF	WARREN UNIT	86	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002527566	APD	96AIR3800AHOF	WARREN UNIT	91	APACHE CORPORATION	NMLC031695B	WSW
Carlsbad	3002527584	APD	96AIR3801AHOF	WARREN UNIT	93	APACHE CORPORATION	NMLC031695B	WSW
Carlsbad	3002530473	APD	96AIR3720AHOF	WARREN UNIT	94	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002530659	APD	96AIR3721AHOF	WARREN UNIT	95	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002530995	APD	96AIR3724AHOF	WARREN UNIT	96	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002531175	APD	96AIR3727AHOF	WARREN UNIT	99	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002531179	APD	96AIR3725AHOF	WARREN UNIT	97	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002531180	APD	96AIR3707AHOF	WARREN UNIT	98	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002531217	APD	96AIR3811AHOF	WARREN UNIT	105	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002531936	APD	96AIR3812AHOF	WARREN UNIT	106	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002531965	APD	96AIR3813AHOF	WARREN UNIT	110	APACHE CORPORATION	NMLC031695B	WIW
Carlsbad	3002532242	APD	96AIR3729AHOF	WARREN UNIT	111	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532489	APD	96AIR3730AHOF	WARREN UNIT	112	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532490	APD	96AIR3731AHOF	WARREN UNIT	113	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532491	APD	96AIR3732AHOF	WARREN UNIT	114	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002532492	APD	96AIR3818AHOF	WARREN UNIT	115	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532520	APD	96AIR3819AHOF	WARREN UNIT	116	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002532521	APD	96AIR3733AHOF	WARREN UNIT	117	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532666	APD	96AIR3728AHOF	WARREN UNIT	108	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532853	APD	96AIR3821AHOF	WARREN UNIT	118	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532854	APD	96AIR3822AHOF	WARREN UNIT	119	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002532995	APD	96AIR3825AHOF	WARREN UNIT	203	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002532996	APD	96AIR3829AHOF	WARREN UNIT	208	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533016	APD	96AIR3859AHOF	WARREN UNIT	100	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533097	APD	96AIR3734AHOF	WARREN UNIT	122	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533098	APD	96AIR3861AHOF	WARREN UNIT	125	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533099	APD	96AIR3823AHOF	WARREN UNIT	123	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002533194	APD	96AIR3862AHOF	WARREN UNIT	127	APACHE CORPORATION	NMLC031695B	PGW
Carlsbad	3002533433	APD	96AIR3835AHOF	WARREN UNIT	308	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533473	APD	96AIR3865AHOF	WARREN UNIT	131	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533484	APD	96AIR3864AHOF	WARREN UNIT	130	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533485	APD	96AIR3866AHOF	WARREN UNIT	132	APACHE CORPORATION	NMLC031695B	PGW
Carlsbad	3002533486	APD	96AIR3867AHOF	WARREN UNIT	133	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533487	APD	96AIR3868AHOF	WARREN UNIT	134	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533552	APD	96AIR3836AHOF	WARREN UNIT	317	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533559	APD	96AIR3839AHOF	WARREN UNIT	419	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002533619	APD	96AIR3828AHOF	WARREN UNIT	207	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533624	APD	96AIR3824AHOF	WARREN UNIT	202	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533640	APD	96AIR3826AHOF	WARREN UNIT	204	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533770	APD	96AIR3855AHOF	WARREN UNIT	101	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533771	APD	96AIR3810AHOF	WARREN UNIT	102	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533856	APD	96AIR3869AHOF	WARREN UNIT	137	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533857	APD	96AIR3870AHOF	WARREN UNIT	138	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533915	APD	96AIR3871AHOF	WARREN UNIT	140	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002533916	APD	96AIR3831AHOF	WARREN UNIT	212	APACHE CORPORATION	NMLC031695B	PGW
Carlsbad	3002533917	APD	96AIR3832AHOF	WARREN UNIT	213	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533918	APD	96AIR3833AHOF	WARREN UNIT	214	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533941	APD	96AIR3827AHOF	WARREN UNIT	206	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533942	APD	96AIR3834AHOF	WARREN UNIT	215	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533974	APD	96AIR3872AHOF	WARREN UNIT	144	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002533975	APD	96AIR3873AHOF	WARREN UNIT	145	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002534033	APD	97A0044AHOF	WARREN UNIT	104	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002534838	APD	00LA0034AHOF	WARREN UNIT	306	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002534839	APD	00LA0036AHOF	WARREN UNIT	310	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002534840	APD	00LA0038AHOF	WARREN UNIT	315	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002535772	APD	01AL0031AEHOF	WARREN UNIT	148	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002538512	APD	07TLC0056AHOF	WARREN UNIT	323	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002538949	APD	07TLC0054AHOF	WARREN UNIT	322	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002539190	APD	08DLM0273AHOF	WARREN UNIT	324	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002539513	APD	09BH0054AHOF	WARREN UNIT	335	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002539514	APD	09DLM0110AHOF	WARREN UNIT	336	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002539724	APD	10KMS0173AHOF	WARREN UNIT	337	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002539725	APD	10KMS0175AHOF	WARREN UNIT	338	APACHE CORPORATION	NMLC063458	POW
Carlsbad	3002539726	APD	10KMS0177AHOF	WARREN UNIT	345	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002539727	APD	10DLM0197AHOF	WARREN UNIT	346	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002539728	APD	10DLM0201AHOF	WARREN UNIT	354	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002539729	APD	10DLM0203AHOF	WARREN UNIT	355	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002539730	APD	10DLM0205AHOF	WARREN UNIT	356	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002539749	APD	10DLM0199AHOF	WARREN UNIT	347	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002540283	APD	11KMS0751AEHOF	WARREN UNIT	353	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002540284	APD	11KMS0752AEHOF	WARREN UNIT	394	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002540285	APD	11KMS0748AEHOF	WARREN UNIT	393	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002540286	APD	11KMS0749AEHOF	WARREN UNIT	395	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002540287	APD	11KMS0746AEHOF	WARREN UNIT	396	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002540288	APD	11KMS0747AEHOF	WARREN UNIT	397	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002540289	APD	11KMS0750AEHOF	WARREN UNIT	399	APACHE CORPORATION	NMLC031670B	POW
Carlsbad	3002540294	APD	11DLM0427AEHOF	WARREN UNIT	348	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002540295	APD	11DLM0681AEHOF	WARREN UNIT	398	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002537949	APD	06IMA0074AHOF	WARREN UNIT BLINEBRY TUBB WF	318	APACHE CORPORATION	NMLC031695B	POW
Carlsbad	3002540798	APD	12KMS0935AHOF	WERTA FEDERAL	2	APACHE CORPORATION	NMNM14812	POW
Carlsbad	3002540799	APD	12KMS0942AHOF	WERTA FEDERAL	3	APACHE CORPORATION	NMNM14812	POW
Carlsbad	3002541593	APD	13KMS2043AHOF	WERTA FEDERAL	4	APACHE CORPORATION	NMNM14812	POW
Carlsbad	3002506389	APD	96AIR4416AHOF	WEST BLINEBRY DRINKARD UNIT	22	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002506395	NON	FE09DAP0083AHO	WEST BLINEBRY DRINKARD UNIT	7	APACHE CORPORATION	FEE	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002506396	NON	FE12LJ0036AHO	WEST BLINEBRY DRINKARD UNIT	138	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506397	NON	FE09DAP0084AHO	WEST BLINEBRY DRINKARD UNIT	8	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506403	NON	FE09DAP0077AHO	WEST BLINEBRY DRINKARD UNIT	1	APACHE CORPORATION	FEE	POW
Carlsbad	3002506432	APD	96AIR4413AHOF	WEST BLINEBRY DRINKARD UNIT	20	APACHE CORPORATION	NMLC031741A	WIW
Carlsbad	3002506433	APD	96AIR7523AHOF	WEST BLINEBRY DRINKARD UNIT	40	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002506434	APD	96AIR7527AHOF	WEST BLINEBRY DRINKARD UNIT	41	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002506437	APD	96AIR0029AHOF	WEST BLINEBRY DRINKARD UNIT	32	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002506438	APD	96AIR7537AHOF	WEST BLINEBRY DRINKARD UNIT	33	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002506439	APD	96AIR7531AHOF	WEST BLINEBRY DRINKARD UNIT	37	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002506440	APD	96AIR4414AHOF	WEST BLINEBRY DRINKARD UNIT	21	APACHE CORPORATION	NMLC031741A	WIW
Carlsbad	3002506441	APD	96AIR7529AHOF	WEST BLINEBRY DRINKARD UNIT	39	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002506442	NON	FE09DAP0081AHO	WEST BLINEBRY DRINKARD UNIT	5	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506443	NON	FE09DAP0082AHO	WEST BLINEBRY DRINKARD UNIT	6	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506444	NON	FE09DAP0085AHO	WEST BLINEBRY DRINKARD UNIT	9	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506445	NON	FE09DAP0086AHO	WEST BLINEBRY DRINKARD UNIT	10	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506615	NON	ST09DAP0106AHO	WEST BLINEBRY DRINKARD UNIT	75	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506616	NON	ST09DAP0107AHO	WEST BLINEBRY DRINKARD UNIT	76	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506618	NON	ST09DAP0108AHO	WEST BLINEBRY DRINKARD UNIT	77	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506619	NON	ST09DAP0109AHO	WEST BLINEBRY DRINKARD UNIT	78	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506621	NON	ST09DAP0094AHO	WEST BLINEBRY DRINKARD UNIT	56	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506623	NON	ST09DAP0095AHO	WEST BLINEBRY DRINKARD UNIT	57	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506625	NON	ST09DAP0096AHO	WEST BLINEBRY DRINKARD UNIT	58	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506626	NON	ST09DAP0097AHO	WEST BLINEBRY DRINKARD UNIT	59	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506628	NON	ST09DAP0098AHO	WEST BLINEBRY DRINKARD UNIT	60	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506629	NON	ST09DAP0099AHO	WEST BLINEBRY DRINKARD UNIT	61	APACHE CORPORATION	STATE	WIW
Carlsbad	3002506632	NON	ST09DAP0119AHO	WEST BLINEBRY DRINKARD UNIT	88	APACHE CORPORATION	STATE	POW
Carlsbad	3002506633	NON	ST09DAP0120AHO	WEST BLINEBRY DRINKARD UNIT	89	APACHE CORPORATION	STATE	POW
Carlsbad	3002506634	NON	ST09DAP0121AHO	WEST BLINEBRY DRINKARD UNIT	90	APACHE CORPORATION	STATE	POW
Carlsbad	3002506642	NON	FE09DAP0102AHO	WEST BLINEBRY DRINKARD UNIT	65	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506643	NON	FE09DAP0118AHO	WEST BLINEBRY DRINKARD UNIT	87	APACHE CORPORATION	FEE	POW
Carlsbad	3002506645	NON	FE09DAP0103AHO	WEST BLINEBRY DRINKARD UNIT	72	APACHE CORPORATION	FEE	POW
Carlsbad	3002506646	NON	FE09DAP0104AHO	WEST BLINEBRY DRINKARD UNIT	73	APACHE CORPORATION	FEE	POW
Carlsbad	3002506647	NON	FE09DAP0105AHO	WEST BLINEBRY DRINKARD UNIT	74	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506652	NON	FE09DAP0116AHO	WEST BLINEBRY DRINKARD UNIT	85	APACHE CORPORATION	FEE	WIW
Carlsbad	3002506716	APD	96AIR4799AHOF	WEST BLINEBRY DRINKARD UNIT	95	APACHE CORPORATION	NMLC032591A	POW
Carlsbad	3002509908	APD	96AIR7534AHOF	WEST BLINEBRY DRINKARD UNIT	36	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002509909	APD	96AIR7520AHOF	WEST BLINEBRY DRINKARD UNIT	34	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002509910	APD	96AIR7536AHOF	WEST BLINEBRY DRINKARD UNIT	35	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002520311	NON	ST09DAP0122AHO	WEST BLINEBRY DRINKARD UNIT	91	APACHE CORPORATION	STATE	POW
Carlsbad	3002521225	APD	96AIR4415AHOF	WEST BLINEBRY DRINKARD UNIT	23	APACHE CORPORATION	NMLC031741A	WIW
Carlsbad	3002526266	APD	96AIR7525AHOF	WEST BLINEBRY DRINKARD UNIT	44	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002536305	NON	ST09DAP0100AHO	WEST BLINEBRY DRINKARD UNIT	62	APACHE CORPORATION	STATE	POW
Carlsbad	3002536314	NON	FE09DAP0089AHO	WEST BLINEBRY DRINKARD UNIT	13	APACHE CORPORATION	FEE	POW
Carlsbad	3002536340	NON	FE09DAP0088AHO	WEST BLINEBRY DRINKARD UNIT	12	APACHE CORPORATION	FEE	POW
Carlsbad	3002536811	NON	FE09DAP0078AHO	WEST BLINEBRY DRINKARD UNIT	2	APACHE CORPORATION	FEE	POW
Carlsbad	3002537020	APD	05LA0048AEHOF	WEST BLINEBRY DRINKARD UNIT	46	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002537030	NON	FE09DAP0090AHO	WEST BLINEBRY DRINKARD UNIT	14	APACHE CORPORATION	FEE	POW
Carlsbad	3002537031	NON	FE09DAP0091AHO	WEST BLINEBRY DRINKARD UNIT	15	APACHE CORPORATION	FEE	POW
Carlsbad	3002537200	NON	FE09DAP0092AHO	WEST BLINEBRY DRINKARD UNIT	16	APACHE CORPORATION	FEE	POW
Carlsbad	3002537201	NON	ST09DAP0110AHO	WEST BLINEBRY DRINKARD UNIT	79	APACHE CORPORATION	STATE	POW
Carlsbad	3002537463	NON	FE09DAP0093AHO	WEST BLINEBRY DRINKARD UNIT	17	APACHE CORPORATION	FEE	POW
Carlsbad	3002537535	NON	ST09DAP0123AHO	WEST BLINEBRY DRINKARD UNIT	92	APACHE CORPORATION	STATE	POW
Carlsbad	3002537536	NON	ST09DAP0124AHO	WEST BLINEBRY DRINKARD UNIT	93	APACHE CORPORATION	STATE	POW
Carlsbad	3002537537	NON	ST09DAP0125AHO	WEST BLINEBRY DRINKARD UNIT	94	APACHE CORPORATION	STATE	POW
Carlsbad	3002537741	APD	06LD0155AHOF	WEST BLINEBRY DRINKARD UNIT	47	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002537742	APD	06LD0163AHOF	WEST BLINEBRY DRINKARD UNIT	48	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002537743	APD	06LD0161AHOF	WEST BLINEBRY DRINKARD UNIT	49	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002537744	APD	06LD0159AHOF	WEST BLINEBRY DRINKARD UNIT	50	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002537983	NON	FE09DAP0079AHO	WEST BLINEBRY DRINKARD UNIT	3	APACHE CORPORATION	FEE	POW
Carlsbad	3002538194	APD	06CMR0149AHOF	WEST BLINEBRY DRINKARD UNIT	29	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002538195	APD	06CMR0151AHOF	WEST BLINEBRY DRINKARD UNIT	30	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002538196	APD	06CMR0155AHOF	WEST BLINEBRY DRINKARD UNIT	31	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002538197	APD	06CMR0159AHOF	WEST BLINEBRY DRINKARD UNIT	51	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538198	APD	06CMR0161AHOF	WEST BLINEBRY DRINKARD UNIT	52	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538199	APD	06CMR0163AHOF	WEST BLINEBRY DRINKARD UNIT	53	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538200	APD	06CMR0165AHOF	WEST BLINEBRY DRINKARD UNIT	54	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538204	APD	06CMR0137AHOF	WEST BLINEBRY DRINKARD UNIT	69	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002538205	APD	06CMR0141AHOF	WEST BLINEBRY DRINKARD UNIT	70	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002538206	APD	06CMR0143AHOF	WEST BLINEBRY DRINKARD UNIT	71	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002538220	NON	ST09DAP0111AHO	WEST BLINEBRY DRINKARD UNIT	80	APACHE CORPORATION	STATE	POW
Carlsbad	3002538229	NON	FE09DAP0080AHO	WEST BLINEBRY DRINKARD UNIT	4	APACHE CORPORATION	FEE	POW
Carlsbad	3002538230	NON	ST09DAP0112AHO	WEST BLINEBRY DRINKARD UNIT	81	APACHE CORPORATION	STATE	POW
Carlsbad	3002538231	NON	ST09DAP0113AHO	WEST BLINEBRY DRINKARD UNIT	82	APACHE CORPORATION	STATE	POW
Carlsbad	3002538267	NON	ST07AS0100AHO	WEST BLINEBRY DRINKARD UNIT	63	APACHE CORPORATION	STATE	POW
Carlsbad	3002538268	NON	ST09DAP0101AHO	WEST BLINEBRY DRINKARD UNIT	64	APACHE CORPORATION	STATE	POW
Carlsbad	3002538281	NON	FE07AS0121AHO	WEST BLINEBRY DRINKARD UNIT	18	APACHE CORPORATION	FEE	POW
Carlsbad	3002538411	APD	06CMR0133AHOF	WEST BLINEBRY DRINKARD UNIT	68	APACHE CORPORATION	NMLC032096A	POW
Carlsbad	3002538414	NON	ST09DAP0114AHO	WEST BLINEBRY DRINKARD UNIT	83	APACHE CORPORATION	STATE	POW
Carlsbad	3002538415	NON	ST09DAP0115AHO	WEST BLINEBRY DRINKARD UNIT	84	APACHE CORPORATION	STATE	POW
Carlsbad	3002538521	APD	06CMR0167AHOF	WEST BLINEBRY DRINKARD UNIT	55	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002538540	NON	FE07AS0104AHO	WEST BLINEBRY DRINKARD UNIT	19	APACHE CORPORATION	FEE	POW
Carlsbad	3002539119	NON	ST09DAP0547AHO	WEST BLINEBRY DRINKARD UNIT	98	APACHE CORPORATION	STATE	POW
Carlsbad	3002539171	NON	FE11KMS1029AHO	WEST BLINEBRY DRINKARD UNIT	122	APACHE CORPORATION	FEE	POW
Carlsbad	3002539172	NON	FE12LJ0007AHO	WEST BLINEBRY DRINKARD UNIT	123	APACHE CORPORATION	FEE	POW
Carlsbad	3002539276	NON	FE11DAP0187AHO	WEST BLINEBRY DRINKARD UNIT	103	APACHE CORPORATION	FEE	POW

BLM Office	US Well Number	APD Type	APD/NOS ID	Well Name	Well Number	Operator	Lease Number	Status
Carlsbad	3002539277	NON	ST11DAP0146AHO	WEST BLINEBRY DRINKARD UNIT	113	APACHE CORPORATION	STATE	POW
Carlsbad	3002539278	NON	FE12LJ0037AHO	WEST BLINEBRY DRINKARD UNIT	117	APACHE CORPORATION	FEE	POW
Carlsbad	3002539279	NON	FE11DAP0147AHO	WEST BLINEBRY DRINKARD UNIT	119	APACHE CORPORATION	FEE	POW
Carlsbad	3002539280	NON	FE12LJ0015AHO	WEST BLINEBRY DRINKARD UNIT	129	APACHE CORPORATION	FEE	POW
Carlsbad	3002539287	NON	FE09DAP0546AHO	WEST BLINEBRY DRINKARD UNIT	99	APACHE CORPORATION	FEE	POW
Carlsbad	3002539300	NON	ST12LJ0009AHO	WEST BLINEBRY DRINKARD UNIT	115	APACHE CORPORATION	STATE	POW
Carlsbad	3002539381	APD	08BH0058AHOF	WEST BLINEBRY DRINKARD UNIT	127	APACHE CORPORATION	NMLC032591A	POW
Carlsbad	3002539407	APD	09BH0029AHOF	WEST BLINEBRY DRINKARD UNIT	106	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002539442	APD	09DLM0077AHOF	WEST BLINEBRY DRINKARD UNIT	112	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002539494	NON	FE12LJ0038AHO	WEST BLINEBRY DRINKARD UNIT	110	APACHE CORPORATION	FEE	POW
Carlsbad	3002539574	NON	FE12LJ0012AHO	WEST BLINEBRY DRINKARD UNIT	137	APACHE CORPORATION	FEE	WIW
Carlsbad	3002539708	NON	FE11DAP0189AHO	WEST BLINEBRY DRINKARD UNIT	100	APACHE CORPORATION	FEE	POW
Carlsbad	3002539709	NON	FE12LJ0017AHO	WEST BLINEBRY DRINKARD UNIT	118	APACHE CORPORATION	FEE	POW
Carlsbad	3002539710	NON	FE11DAP0188AHO	WEST BLINEBRY DRINKARD UNIT	120	APACHE CORPORATION	FEE	POW
Carlsbad	3002539733	NON	FE12LJ0011AHO	WEST BLINEBRY DRINKARD UNIT	109	APACHE CORPORATION	FEE	POW
Carlsbad	3002539958	NON	FE12LJ0039AHO	WEST BLINEBRY DRINKARD UNIT	126	APACHE CORPORATION	FEE	POW
Carlsbad	3002539963	NON	ST12LJ0010AHO	WEST BLINEBRY DRINKARD UNIT	114	APACHE CORPORATION	STATE	POW
Carlsbad	3002539964	NON	FE12LJ0013AHO	WEST BLINEBRY DRINKARD UNIT	128	APACHE CORPORATION	FEE	POW
Carlsbad	3002539965	NON	FE12LJ0014AHO	WEST BLINEBRY DRINKARD UNIT	131	APACHE CORPORATION	FEE	POW
Carlsbad	3002539986	NON	FE12LJ0008AHO	WEST BLINEBRY DRINKARD UNIT	121	APACHE CORPORATION	FEE	POW
Carlsbad	3002539987	NON	FE12LJ0016AHO	WEST BLINEBRY DRINKARD UNIT	125	APACHE CORPORATION	FEE	POW
Carlsbad	3002539988	NON	FE11KMS1033AHO	WEST BLINEBRY DRINKARD UNIT	136	APACHE CORPORATION	FEE	POW
Carlsbad	3002539989	NON	FE11KMS1031AHO	WEST BLINEBRY DRINKARD UNIT	139	APACHE CORPORATION	FEE	POW
Carlsbad	3002540270	APD	11DLM0250AHOF	WEST BLINEBRY DRINKARD UNIT	101	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002540271	APD	11DLM0256AHOF	WEST BLINEBRY DRINKARD UNIT	102	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002540272	APD	11DLM0254AHOF	WEST BLINEBRY DRINKARD UNIT	104	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002540273	APD	11DLM0248AHOF	WEST BLINEBRY DRINKARD UNIT	108	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002540274	APD	11CMR0075AHOF	WEST BLINEBRY DRINKARD UNIT	124	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002540275	APD	11DLM0252AHOF	WEST BLINEBRY DRINKARD UNIT	133	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002540276	APD	11CMR0071AHOF	WEST BLINEBRY DRINKARD UNIT	135	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002540363	NON	FE12LJ0043AHO	WEST BLINEBRY DRINKARD UNIT	111	APACHE CORPORATION	FEE	POW
Carlsbad	3002540429	NON	FE12LJ0049AHO	WEST BLINEBRY DRINKARD UNIT	144H	APACHE CORPORATION	FEE	POW
Carlsbad	3002540480	APD	12JLH0011AHOF	WEST BLINEBRY DRINKARD UNIT	105	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002540481	APD	12JLH0013AHOF	WEST BLINEBRY DRINKARD UNIT	107	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002540695	APD	12KMS0402AHOF	WEST BLINEBRY DRINKARD UNIT	140	APACHE CORPORATION	NMLC031741A	POW
Carlsbad	3002541262	APD	12KMS0973AHOF	WEST BLINEBRY DRINKARD UNIT	142	APACHE CORPORATION	NMNM90161	POW
Carlsbad	3002541543	NON	ST15LJ1291AHO	WEST BLINEBRY DRINKARD UNIT	152	APACHE CORPORATION	STATE	WIW
Carlsbad	3002541547	NON	FE15LJ1293AHO	WEST BLINEBRY DRINKARD UNIT	178	APACHE CORPORATION	FEE	WIW
Carlsbad	3002541548	NON	FE15LJ1290AHO	WEST BLINEBRY DRINKARD UNIT	168	APACHE CORPORATION	FEE	WIW
Carlsbad	3002541549	NON	ST15LJ1292AHO	WEST BLINEBRY DRINKARD UNIT	154	APACHE CORPORATION	STATE	WIW
Carlsbad	3002541871	NON	FE15LJ0439AHO	WEST BLINEBRY DRINKARD UNIT	201D	APACHE CORPORATION	FEE	POW
Carlsbad	3002541872	NON	FE15LJ0440AHO	WEST BLINEBRY DRINKARD UNIT	202	APACHE CORPORATION	FEE	POW
Carlsbad	3002541873	NON	FE15LJ0830AHO	WEST BLINEBRY DRINKARD UNIT	206	APACHE CORPORATION	FEE	POW
Carlsbad	3002541874	NON	FE15LJ0441AHO	WEST BLINEBRY DRINKARD UNIT	210	APACHE CORPORATION	FEE	POW
Carlsbad	3002541875	NON	FE15LJ0831AHO	WEST BLINEBRY DRINKARD UNIT	211	APACHE CORPORATION	FEE	POW
Carlsbad	3002541876	NON	FE15LJ0832AHO	WEST BLINEBRY DRINKARD UNIT	214	APACHE CORPORATION	FEE	POW
Carlsbad	3002541880	NON	FE15LJ0442AHO	WEST BLINEBRY DRINKARD UNIT	241	APACHE CORPORATION	FEE	POW
Carlsbad	3002542493	APD	14DLM1435AHOF	WEST BLINEBRY DRINKARD UNIT	185	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002542494	APD	14DLM1434AHOF	WEST BLINEBRY DRINKARD UNIT	192	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002542495	APD	14DLM1439AHOF	WEST BLINEBRY DRINKARD UNIT	130	APACHE CORPORATION	NMLC032096A	WIW
Carlsbad	3002542496	APD	14DLM1426AHOF	WEST BLINEBRY DRINKARD UNIT	221	APACHE CORPORATION	NMLC032096A	WIW
Carlsbad	3002542569	APD	14DLM1437AHOF	WEST BLINEBRY DRINKARD UNIT	188	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002543229	APD	16DLM0591AHOF	WEST BLINEBRY DRINKARD UNIT	145	APACHE CORPORATION	NMLC032096A	WIW
Carlsbad	3002543528	NON	ST17LJ0043AHO	WEST BLINEBRY DRINKARD UNIT	179	APACHE CORPORATION	STATE	WIW
Carlsbad	3002543529	NON	FE18DMH0008AHO	WEST BLINEBRY DRINKARD UNIT	180	APACHE CORPORATION	FEE	WIW
Carlsbad	3002543530	NON	FE18DMH0009AHO	WEST BLINEBRY DRINKARD UNIT	182	APACHE CORPORATION	FEE	WIW
Carlsbad	3002543780	APD	10400010927	WEST BLINEBRY DRINKARD UNIT	183	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3002543804	APD	10400011701	WEST BLINEBRY DRINKARD UNIT	184	APACHE CORPORATION	NMNM90161	WIW
Carlsbad	3001529990	APD	98JA0040ACBF	WEST RED LAKE 4	1	APACHE CORPORATION	NMLC065478A	POW
Carlsbad	3001530134	APD	98JA0331ACBF	WEST RED LAKE 4	3	APACHE CORPORATION	NMLC065478A	POW
Carlsbad	3001530186	APD	98EI0885ACBF	WEST RED LAKE 4 FEDERAL	2	APACHE CORPORATION	NMLC065478A	ABD

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Wells Selected for Transfer

Permit 379472

112 Wells Selected for Transfer

From:	OGRID:
APACHE CORPORATION	873
To:	**OGRID:**
HILCORP ENERGY COMPANY	372171

OCD District Hobbs (112 Wells selected.)

Property	Well	Lease Type	ULSTR	OCD Unit	API	Pool ID	Pool Name	Well Type
336690	EAST BLINEBRY DRINKARD UNIT #001	F	12-01-21S-37E	L	30-025-06328			O
	EAST BLINEBRY DRINKARD UNIT #002	F	11-01-21S-37E	C	30-025-06330			O
	EAST BLINEBRY DRINKARD UNIT #003	F	13-01-21S-37E	E	30-025-06325			I
	EAST BLINEBRY DRINKARD UNIT #005	F	14-01-21S-37E	F	30-025-06326			O
	EAST BLINEBRY DRINKARD UNIT #006	F	14-01-21S-37E	N	30-025-30469			O
	EAST BLINEBRY DRINKARD UNIT #007	F	L-01-21S-37E	L	30-025-06332			O
	EAST BLINEBRY DRINKARD UNIT #008	F	N-01-21S-37E	N	30-025-06335			O
	EAST BLINEBRY DRINKARD UNIT #009	F	N-01-21S-37E	V	30-025-34937			O
	EAST BLINEBRY DRINKARD UNIT #010	F	J-01-21S-37E	J	30-025-06336			O
	EAST BLINEBRY DRINKARD UNIT #011	F	15-01-21S-37E	G	30-025-06337			O
	EAST BLINEBRY DRINKARD UNIT #012	F	D-11-21S-37E	D	30-025-06477			I
	EAST BLINEBRY DRINKARD UNIT #013	F	C-11-21S-37E	C	30-025-06476			I
	EAST BLINEBRY DRINKARD UNIT #014	F	B-11-21S-37E	B	30-025-06482			O
	EAST BLINEBRY DRINKARD UNIT #015	F	A-11-21S-37E	A	30-025-06527			I
	EAST BLINEBRY DRINKARD UNIT #017	F	O-11-21S-37E	O	30-025-06478			I
	EAST BLINEBRY DRINKARD UNIT #018	F	A-11-21S-37E	A	30-025-06479			I
	EAST BLINEBRY DRINKARD UNIT #019	F	H-11-21S-37E	H	30-025-06480			I
	EAST BLINEBRY DRINKARD UNIT #020	F	I-11-21S-37E	I	30-025-06481			I
	EAST BLINEBRY DRINKARD UNIT #021	F	B-11-21S-37E	B	30-025-06523			I
	EAST BLINEBRY DRINKARD UNIT #022	F	P-11-21S-37E	P	30-025-06528			I
	EAST BLINEBRY DRINKARD UNIT #023	F	G-11-21S-37E	G	30-025-06529			I
	EAST BLINEBRY DRINKARD UNIT #024	F	J-11-21S-37E	J	30-025-06530			O
	EAST BLINEBRY DRINKARD UNIT #025	F	F-11-21S-37E	F	30-025-06531			I
	EAST BLINEBRY DRINKARD UNIT #026	F	G-11-21S-37E	G	30-025-06536			I
	EAST BLINEBRY DRINKARD UNIT #027	F	E-11-21S-37E	E	30-025-06535			I
	EAST BLINEBRY DRINKARD UNIT #028	F	D-12-21S-37E	D	30-025-06538			I
	EAST BLINEBRY DRINKARD UNIT #029	F	C-12-21S-37E	C	30-025-06548			O
	EAST BLINEBRY DRINKARD UNIT #030	F	E-12-21S-37E	E	30-025-06539			I
	EAST BLINEBRY DRINKARD UNIT #031	F	C-12-21S-37E	C	30-025-06541			I
	EAST BLINEBRY DRINKARD UNIT #033	F	F-12-21S-37E	F	30-025-06543			O
	EAST BLINEBRY DRINKARD UNIT #034	F	G-12-21S-37E	G	30-025-06544			I
	EAST BLINEBRY DRINKARD UNIT #035	F	B-12-21S-37E	B	30-025-06545			O
	EAST BLINEBRY DRINKARD UNIT #036	F	E-12-21S-37E	E	30-025-06546			I
	EAST BLINEBRY DRINKARD UNIT #037	F	E-13-21S-37E	E	30-025-06556			I
	EAST BLINEBRY DRINKARD UNIT #038	F	F-13-21S-37E	F	30-025-06557			O
	EAST BLINEBRY DRINKARD UNIT #039	F	G-13-21S-37E	G	30-025-06560			O
	EAST BLINEBRY DRINKARD UNIT #040	F	J-13-21S-37E	J	30-025-06561			O
	EAST BLINEBRY DRINKARD UNIT #041	F	L-13-21S-37E	L	30-025-06562			O
	EAST BLINEBRY DRINKARD UNIT #042	F	N-13-21S-37E	N	30-025-28011			O
	EAST BLINEBRY DRINKARD UNIT #043	F	H-14-21S-37E	H	30-025-06573			O
	EAST BLINEBRY DRINKARD UNIT #044	F	P-14-21S-37E	P	30-025-06574			O
	EAST BLINEBRY DRINKARD UNIT #045	F	A-14-21S-37E	A	30-025-06575			I
	EAST BLINEBRY DRINKARD UNIT #048	P	M-12-21S-37E	M	30-025-06550			I
	EAST BLINEBRY DRINKARD UNIT #049	P	G-14-21S-37E	G	30-025-06582			O
	EAST BLINEBRY DRINKARD UNIT #050	P	B-14-21S-37E	B	30-025-06583			I
	EAST BLINEBRY DRINKARD UNIT #052	P	B-14-21S-37E	B	30-025-36810			O
	EAST BLINEBRY DRINKARD UNIT #053	P	C-13-21S-37E	C	30-025-06566			I
	EAST BLINEBRY DRINKARD UNIT #054	P	B-13-21S-37E	B	30-025-06567			I
	EAST BLINEBRY DRINKARD UNIT #055	P	D-13-21S-37E	D	30-025-06568			I
	EAST BLINEBRY DRINKARD UNIT #056	F	M-01-21S-37E	M	30-025-06334			I
	EAST BLINEBRY DRINKARD UNIT #057	F	K-01-21S-37E	S	30-025-29061			I
	EAST BLINEBRY DRINKARD UNIT #060	P	B-14-21S-37E	B	30-025-38113			O
	EAST BLINEBRY DRINKARD UNIT #061	F	I-14-21S-37E	I	30-025-38280			O
	EAST BLINEBRY DRINKARD UNIT #062	F	P-14-21S-37E	P	30-025-38233			O
	EAST BLINEBRY DRINKARD UNIT #063	F	J-11-21S-37E	J	30-025-38234			O
	EAST BLINEBRY DRINKARD UNIT #064	F	D-11-21S-37E	D	30-025-38301			O

	EAST BLINEBRY DRINKARD UNIT #065	F	C-11-21S-37E	C	30-025-38760			O
	EAST BLINEBRY DRINKARD UNIT #066	F	A-11-21S-37E	A	30-025-38761			O
	EAST BLINEBRY DRINKARD UNIT #067	F	H-11-21S-37E	H	30-025-38771			O
	EAST BLINEBRY DRINKARD UNIT #068	P	N-12-21S-37E	N	30-025-38500			O
	EAST BLINEBRY DRINKARD UNIT #069	F	P-14-21S-37E	P	30-025-38751			O
	EAST BLINEBRY DRINKARD UNIT #070	P	D-13-21S-37E	D	30-025-38501			O
	EAST BLINEBRY DRINKARD UNIT #071	P	D-13-21S-37E	D	30-025-38536			O
	EAST BLINEBRY DRINKARD UNIT #072	P	B-13-21S-37E	B	30-025-38537			O
	EAST BLINEBRY DRINKARD UNIT #073	F	G-11-21S-37E	G	30-025-39380			O
	EAST BLINEBRY DRINKARD UNIT #074	P	L-12-21S-37E	L	30-025-39379			O
	EAST BLINEBRY DRINKARD UNIT #075	P	L-12-21S-37E	L	30-025-39012			O
	EAST BLINEBRY DRINKARD UNIT #077	P	J-12-21S-37E	J	30-025-39273			O
	EAST BLINEBRY DRINKARD UNIT #078	P	N-12-21S-37E	N	30-025-39274			O
	EAST BLINEBRY DRINKARD UNIT #079	P	N-12-21S-37E	N	30-025-39378			O
	EAST BLINEBRY DRINKARD UNIT #080	F	A-14-21S-37E	A	30-025-39674			O
	EAST BLINEBRY DRINKARD UNIT #081	P	B-14-21S-37E	B	30-025-39057			O
	EAST BLINEBRY DRINKARD UNIT #082	P	C-13-21S-37E	C	30-025-39568			O
	EAST BLINEBRY DRINKARD UNIT #083	F	L-13-21S-37E	L	30-025-39459			O
	EAST BLINEBRY DRINKARD UNIT #084	F	E-13-21S-37E	E	30-025-39675			O
	EAST BLINEBRY DRINKARD UNIT #085	F	M-13-21S-37E	M	30-025-39460			O
	EAST BLINEBRY DRINKARD UNIT #086	F	F-11-21S-37E	F	30-025-39644			O
	EAST BLINEBRY DRINKARD UNIT #087	F	P-11-21S-37E	P	30-025-39406			O
	EAST BLINEBRY DRINKARD UNIT #089	P	G-14-21S-37E	G	30-025-39275			O
	EAST BLINEBRY DRINKARD UNIT #090	P	L-12-21S-37E	L	30-025-39034			O
	EAST BLINEBRY DRINKARD UNIT #091	P	K-12-21S-37E	K	30-025-39706			O
	EAST BLINEBRY DRINKARD UNIT #092	P	O-12-21S-37E	O	30-025-39036			O
	EAST BLINEBRY DRINKARD UNIT #093	P	B-13-21S-37E	B	30-025-39707			O
	EAST BLINEBRY DRINKARD UNIT #094	P	C-13-21S-37E	C	30-025-39035			O
	EAST BLINEBRY DRINKARD UNIT #095	F	N-01-21S-37E	V	30-025-39676			O
	EAST BLINEBRY DRINKARD UNIT #096	F	L-01-21S-37E	L	30-025-39677			O
	EAST BLINEBRY DRINKARD UNIT #097	F	M-01-21S-37E	U	30-025-40263			O
	EAST BLINEBRY DRINKARD UNIT #098	F	D-12-21S-37E	D	30-025-39645			O
	EAST BLINEBRY DRINKARD UNIT #099	F	C-11-21S-37E	C	30-025-39865			O
	EAST BLINEBRY DRINKARD UNIT #100	F	E-11-21S-37E	E	30-025-39461			O
	EAST BLINEBRY DRINKARD UNIT #101	F	E-11-21S-37E	E	30-025-39678			O
	EAST BLINEBRY DRINKARD UNIT #102	F	M-13-21S-37E	M	30-025-39842			O
	EAST BLINEBRY DRINKARD UNIT #103	F	M-13-21S-37E	M	30-025-39843			O
	EAST BLINEBRY DRINKARD UNIT #104	F	J-13-21S-37E	J	30-025-39844			O
	EAST BLINEBRY DRINKARD UNIT #105	F	14-01-21S-37E	N	30-025-40264			O
	EAST BLINEBRY DRINKARD UNIT #106	F	O-01-21S-37E	W	30-025-39391			O
	EAST BLINEBRY DRINKARD UNIT #107	F	O-01-21S-37E	O	30-025-41335			O
	EAST BLINEBRY DRINKARD UNIT #108	F	13-01-21S-37E	E	30-025-39392			O
	EAST BLINEBRY DRINKARD UNIT #109	F	N-13-21S-37E	N	30-025-39405			O
	EAST BLINEBRY DRINKARD UNIT #110	F	K-13-21S-37E	K	30-025-40265			O
	EAST BLINEBRY DRINKARD UNIT #111	F	G-13-21S-37E	G	30-025-39679			O
	EAST BLINEBRY DRINKARD UNIT #112	F	N-01-21S-37E	V	30-025-39845			O
	EAST BLINEBRY DRINKARD UNIT #113	F	C-12-21S-37E	C	30-025-39393			O
	EAST BLINEBRY DRINKARD UNIT #114	F	G-12-21S-37E	G	30-025-40266			O
	EAST BLINEBRY DRINKARD UNIT #115	F	N-13-21S-37E	N	30-025-40267			O
	EAST BLINEBRY DRINKARD UNIT #116	F	15-01-21S-37E	O	30-025-40268			O
	EAST BLINEBRY DRINKARD UNIT #117	F	15-01-21S-37E	G	30-025-39846			O
	EAST BLINEBRY DRINKARD UNIT #118	F	J-13-21S-37E	J	30-025-39847			O
	EAST BLINEBRY DRINKARD UNIT #120	F	D-01-21S-37E	L	30-025-41288			O
	EAST BLINEBRY DRINKARD UNIT #122	F	M-01-21S-37E	U	30-025-39848			O
	EAST BLINEBRY DRINKARD UNIT #129	F	C-01-21S-37E	K	30-025-40269			O
	EAST BLINEBRY DRINKARD UNIT #130	P	J-12-21S-37E	J	30-025-40713			O

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 379472

COMMENTS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 379472
	Action Type: [C-145] EP Change of Operator

Comments

Created By	Comment	Comment Date
vant	EAST BLINEBRY DRINKARD UNIT Private lease type	12/27/2024
afulton	updated to include ebdu all lease types	1/9/2025

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: ____Larry Baker_____ Title: _Environmental Tech Sr._____

Signature: Larry Baker Date: 2/9/2021

email: ___larry.baker@apachecorp.com_____ Telephone: ___432-631-6982_____

Note: This is for the soil remediation only still conducting groundwater monitoring.

OCD Only

Received by: _____ Date**:** _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date**:** _____

Printed Name: _____ Title: _____

1RP-5636
Closure Report
East Blinebry Drinkard Unit #37
Produced Water Spill
Lea County, New Mexico

Latitude: N 32.47956°
Longitude: W -103.12206°

LAI Project No. 19-0112-49

December 31, 2020

Prepared for:

Apache Corporation
303 Veterans Airpark Lane
Midland, Texas 79705

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 205
Midland, Texas 79701

Mark J. Larson, P.G.
Certified Professional Geologist #10490

Daniel St. Germain
Staff Geologist

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Appendix B Laboratory Reports
Appendix C Photographs
Appendix D OCD Communications

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this report on behalf of Apache Corporation (Apache) for closure of the excavation associated with a produced water spill at the East Blinebry Drinkard Unit (EBDU) #37 (Site) located in Unit E (SW/4, SW/4), Section 13, Township 21 South and Range 37 East, in Lea County, New Mexico. The geodetic position is North 32.479569° and West -103.122061°. The surface ownership is private. Figure 1 presents a topographic map.

1.1 Background

The spill occurred at a pipeline junction and flowed west about 675 feet. Approximately 350 feet west of the origin the release flowed south about 450 feet before terminating in a low-lying area. The volume of the release and volume of fluid recovered is unknown. The release is considered major due to the unknown volume of the release. The release covered an area measuring approximately 31,320 square feet or approximately 0.72 acres. Apache submitted form C-141 to OCD on July 26, 2019. Appendix A presents the initial C-141.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,420 feet above mean sea level (msl).
- The topography slopes gently towards the southwest.
- The nearest surface water feature is a low-lying area about 500 feet southwest of the release origin.
- The soils are designated as “Kimbrough gravelly loam, dry, 0 to 3 percent slopes”, consisting of about 3 inches of gravelly loam, underlain by about 7 inches of loam and cemented material (caliche) to about 80 inches below ground surface (bgs), in descending order.
- The soil is not considered prime farmland.
- According to the Texas Bureau of Economic Geology Geologic Atlas of Texas Hobbs Sheet, the surface geology is windblown sand (Holocene to middle Pleistocene) consisting of dark brown to grayish brown sand derived from the underlying Blackwater Draw formation.
- The Ogallala Formation (Tertiary) underlies the Blackwater Draw Formation and is comprised of fluvial sand, silt, clay and localized gravel, with indistinct to massive crossbeds.
- Groundwater occurs in the Ogallala formation between about 55 feet bgs near the point of release to about 47 feet bgs near the point of termination.
- A fresh water well (windmill) is located about 300 feet south of the point of termination for the release and is not shown on the New Mexico Office of the State Engineer (OSE) website.

1.3 Remediation Levels

The following remediation standards are based on closure criteria for soils impacted by a release of unknown volume as presented in Table 1 of 19.15.29 NMAC:

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 100 mg/Kg
- Chloride 600 mg/Kg

Further, 19.15.29.13 NMAC (Restoration, Reclamation and Re-Vegetation) requires the operator to restore the impacted surface area that existed prior to the release or their final land use.

2.0 REMEDIATION

Beginning around June 9, 2020, DRG Oilfield Services, Inc. (DRG), Odessa, Texas, under the supervision from Apache, began excavating contaminated soil to 4.1 feet bgs from Spill Area 1 (26,886 square feet) and to 12 feet bgs from Spill Area 2 (4,431 square feet).

On July 13, 2020, LAI personnel collected thirty-eight (38) five-point composite confirmation soil samples for every 200 square feet of excavation sidewalls in Area 1 and Area 2. The samples were delivered under chain of custody and preservation to Xenco in Midland, Texas, which analyzed the samples for benzene, toluene, ethylbenzene and xylenes (BTEX), total petroleum hydrocarbons (TPH) including gasoline range (C6 to C-12) organics, diesel range (>C12 to C28) organics and oil range (>C28 to C35) organics, and chloride by EPA SW-846 Methods 8021B, 8015M, and Method 300, respectfully. Table 1 presents the confirmation soil sample analytical data summary. Figure 2 presents an aerial map showing the confirmation soil sample locations. Appendix B presents the laboratory reports.

The laboratory reported benzene, BTEX and TPH concentrations below the OCD remediation limits of 10 milligrams per kilogram (mg/Kg), 50 mg/Kg and 100 mg/Kg, respectfully. Chloride was reported above the OCD remediation limit of 600 mg/Kg in the following samples:

C-1	1,150 mg/Kg	C-12	626 mg/Kg
C-2	3,570 mg/Kg	C-17	927 mg/Kg
C-3	1,990 mg/Kg	C-21	1,290 mg/Kg
C-4	3,060 mg/Kg	C-22	704 mg/Kg
C-5	650 mg/Kg	C-23	6,200 mg/Kg
C-6	1,060 mg/Kg	C-24	1,110 mg/Kg
C-7	12,100 mg/Kg	C-26	5,280 mg/Kg
C-8	24,800 mg/Kg	C-27	1,210 mg/Kg
C-9	4,160 mg/Kg	C-28	8,280 mg/Kg
C-10	2,190 mg/Kg	C-32	867 mg/Kg

On July 27 and 29, 2020, DRG excavated additional soil to reduce the chloride concentrations at the above-referenced locations. On August 4, 2020, LAI personnel collected nineteen (19) composite confirmation samples. Soil was not excavated at sample C-1 due to its proximity to a gas pipeline owned by Targa Resources, Inc. Xenco analyzed the samples for chloride by EPA Method 300. Chloride exceeded the OCD remediation limit of 600 mg/Kg in samples C-22 (608 mg/Kg), C-23 (13,900 mg/kg), and C-28 (630 mg/kg). GRD excavated additional soil from C-22, C-23, and C-28.

On August 4, 2020, LAI personnel resampled location C-1, and collected samples from C-22, C-23, and C-28, following additional soil removal. Xenco analyzed all samples for chloride by EPA Method 300 and sample C-1 for TPH by EPA 846 Method SW8015M. The TPH concentration in sample C-1 was below the analytical method reporting limit (<50.3 mg/Kg). Chloride concentrations were below the OCD remediation limit of 600 mg/Kg.

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On August 3, 10, and 11, 2020, LAI personnel collected soil samples from five (5) borings (BH-1 through BH-5) installed in the bottom of the excavation at Area 2 after backfilling with caliche to approximately five (5) feet bgs. Soil samples were collected with a Geoprobe Model 7822DT direct push rig at 10, 12, 14, 16, 18, 20, and 25 feet bgs to confirm the vertical extent of chloride. A soil samples was also collected from 30 feet bgs at BH-1 in Area 2. Xenco analyzed the samples for chloride by EPA Method 300. Xenco reported chloride concentrations below the remediation limit of 600 mg/Kg in all samples. Appendix C presents photographs.

3.0 VARIANCE

On October 29, 2019, Apache submitted a remediation plan that proposed installing a 20-mil thickness polyethylene liner in the bottom of the excavation (12 feet bgs) at Area 2. On August 10 and 11, 2020, LAI personnel collected soil samples from five (5) borings (BH-1 through BH-5) installed in bottom of the excavation at Area 2 after backfilling the excavation to approximately 5 feet bgs with clean caliche. The laboratory reported chloride concentrations above 600 mg/Kg in two (2) samples: BH-3, 10 feet (774 mg/Kg) and BH-3, 12 feet (666 mg/Kg). During g a telephone call on September 11, 2020, OCD approved forgoing the 20-mil thickness liner and backfilling the excavation with clean caliche to three (3) feet bgs and to ground surface with topsoil, however, Apache completed backfilling the excavation with topsoil from five (5) feet to ground surface. Appendix D presents OCD communications.

4.0 MONITORING WELLS

On September 29, 2020, Scarborough Drilling, Inc. (SDI), under LAI supervision, drilled two (2) additional borings (TMW-3 and TWM-4). Monitoring well TMW-3 was installed west of the Area 2 excavation to approximately 68 feet bgs. Monitoring well TMW-4 was drilled east of the Area 2 excavation to approximately 70 feet bgs. Both monitoring well locations were moved with OCD notification due to a buried natural gas pipeline (TMW-3) and thick brush (TMW-4). Monitoring well TMW-3 was moved approximately 125 feet west and south from its proposed location. Monitoring well TMW-4 was moved approximately 25 feet south from its proposed location. Figure 3 presents an aerial drawing showing the monitoring well locations.

The monitoring wells were completed with two (2) inch threaded schedule 40 PVC casing and approximately twenty (20) feet 0.01-inch factory slotted screen. The screens were positioned above and below the groundwater level observed during drilling. On September 30, 2020 groundwater was recorded at 57.62 feet bgs in TMW-3 and 57.39 feet bgs in well TMW-4. The wells were developed using an electric submersible pump to remove to sediment disturbed and fresh water introduced during drilling. All monitor wells were surveyed for geodetic position and elevation, including surface elevation and top of casing (TOC) elevation, West Company, a New Mexico licensed professional surveyor (license number 23263). Figure 4 presents a Site drawing showing the monitoring well locations.

Apache will continue quarterly monitoring of groundwater in wells TMW-1 through TWM-4 and the windmill during 2021 with laboratory analysis of groundwater samples for BTEX, chloride and TDS. Notice will be provided to OCD in Hobbs and Santa Fe, New Mexico at least 7 working days prior to each groundwater monitoring event. The OCD will be notified immediately upon receipt laboratory analysis with significant increase of analyte concentrations.
Apache

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5.0 CLOSURE REQUEST

Apache requests no further action for this release.

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Tables

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Table 1
Confirmation Soil Sample Analytical Data Summary
Apache Corp., EBDU #37
Lea County, New Mexico

Area	Sample ID	Location	Depth (feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Standard:						**10**	**50**				**100/2,500**	**600/10,000**
Confirmation Composite Samples												
1	C-1	Sidewall	0 - 4	07/13/2020	Excavated	<0.00201	<0.00201	<49.8	83.3	<49.8	83.3	**1,150**
				08/04/2020	In-Situ	--	--	<50.3	<50.3	<50.3	<50.3	338
1	C-2	Sidewall	0 - 4	07/13/2020	Excavated	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	**3,570**
			0 - 4	07/27/2020	In-Situ	--	--	--	--	--	--	87
1	C-3	Sidewall	0 - 4	07/13/2020	Excavated	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	**1,990**
				07/29/2020	In-Situ	--	--	--	--	--	--	39
1	C-4	Sidewall	0 - 4	07/13/2020	Excavated	<0.00199	0.00262	<49.8	<49.8	<49.8	<49.8	**3,060**
				07/29/2020	In-Situ	--	--	--	--	--	--	21.8
1	C-5	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00205	<50.0	<50.0	<50.0	<50.0	**650**
				07/29/2020	In-Situ	--	--	--	--	--	--	5.75
1	C-6	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00262	<50.0	<50.0	<50.0	<50.0	**1,060**
				07/29/2020	In-Situ	--	--	--	--	--	--	162
1	C-7	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00378	<49.8	<49.8	<49.8	<49.8	**12,100**
				07/29/2020	In-Situ	--	--	--	--	--	--	11.5
1	C-8	Sidewall	0 - 4	07/13/2020	Excavated	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	**24,800**
				07/29/2020	In-Situ	--	--	--	--	--	--	19
1	C-9	Sidewall	0 - 4	07/13/2020	Excavated	<0.00199	0.00438	<49.9	<49.9	<49.9	<49.9	**4,160**
				07/29/2020	In-Situ	--	--	--	--	--	--	200
1	C-10	Sidewall	0 - 4	07/13/2020	Excavated	<0.00201	0.00336	<49.8	<49.8	<49.8	<49.8	**2,190**
				07/29/2020	In-Situ	--	--	--	--	--	--	126
1	C-11	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00539	<50.0	<50.0	<50.0	<50.0	44.8
1	C-12	Sidewall	0 - 4	07/13/2020	Excavated	<0.00198	0.00415	<50.0	<50.0	<50.0	<50.0	**626**
				07/29/2020	In-Situ	--	--	--	--	--	--	17.6
2	C-13	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00198	0.00252	<50.0	<50.0	<50.0	<50.0	44.1
2	C-14	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00570	<49.9	<49.9	<49.9	<49.9	14.1
2	C-15	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00254	<49.9	<49.9	<49.9	<49.9	24.3
2	C-16	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00552	<50.0	<50.0	<50.0	<50.0	229
2	C-17	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00275	<49.9	<49.9	<49.9	<49.9	**927**
				07/29/2020	In-Situ	--	--	--	--	--	--	9.8
2	C-18	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00722	<50.0	<50.0	<50.0	<50.0	227
1	C-19	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00557	<50.0	<50.0	<50.0	<50.0	60.6

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Table 1
Confirmation Soil Sample Analytical Data Summary
Apache Corp., EBDU #37
Lea County, New Mexico

1	C-20	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00968	<49.9	<49.9	<49.9	<49.9	44.3
1	C-21	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00705	<50.0	<50.0	<50.0	<50.0	**1,290**
				07/29/2020	In-Situ	--	--	--	--	--	--	237
1	C-22	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00493	<50.0	<50.0	<50.0	<50.0	**704**
				07/29/2020	Excavated	--	--	--	--	--	--	**608**
				8/04/2020	In-Situ	--	--	--	--	--	--	10.7
1	C-23	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00339	<49.9	<49.9	<49.9	<49.9	**6,200**
				07/29/2020	Excavated	--	--	--	--	--	--	**13,900**
				8/04/2020	In-Situ	--	--	--	--	--	--	15.8
1	C-24	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00732	<50.0	<50.0	<50.0	<50.0	**1,110**
				07/29/2020	In-Situ	--	--	--	--	--	--	37.4
1	C-25	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00201	0.00464	<49.9	<49.9	<49.9	<49.9	254
1	C-26	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	**5,280**
				07/29/2020	In-Situ	--	--	--	--	--	--	307
1	C-27	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00482	<49.9	<49.9	<49.9	<49.9	**1,210**
				07/29/2020	In-Situ	--	--	--	--	--	--	71.6
1	C-28	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	**8,280**
				07/29/2020	Excavated	--	--	--	--	--	--	**630**
				8/04/2020	In-Situ	--	--	--	--	--	--	415
1	C-29	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00906	<50.0	<50.0	<50.0	<50.0	197
1	C-30	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00198	0.00556	<50.0	<50.0	<50.0	<50.0	264
1	C-31	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	42.1
1	C-32	Sidewall	0 - 4	07/13/2020	Excavated	<0.00199	0.00325	<50.0	<50.0	<50.0	<50.0	**867**
				07/29/2020	In-Situ	--	--	--	--	--	--	30.8
1	C-33	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00712	<49.8	<49.8	<49.8	<49.8	553
1	C-34	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00781	<50.0	<50.0	<50.0	<50.0	242
1	C-35	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00198	0.00876	<50.0	<50.0	<50.0	<50.0	9.23
1	C-36	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00478	<50.0	<50.0	<50.0	<50.0	64.4
1	C-37	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00502	<49.9	<49.9	<49.9	<49.9	14.6
1	C-38	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00857	<49.9	<49.9	<49.9	<49.9	28.7
Soil Boring Samples												
2	BH-1	Bottom	10	8/03/2020	In-Situ	--	--	--	--	--	--	11.6
			12	8/03/2020	In-Situ	--	--	--	--	--	--	13.3
			14	8/03/2020	In-Situ	--	--	--	--	--	--	13.4
			16	8/03/2020	In-Situ	--	--	--	--	--	--	22.9
			18	8/03/2020	In-Situ	--	--	--	--	--	--	34.4
			20	8/03/2020	In-Situ	--	--	--	--	--	--	24.7

Released to Imaging: 6/1/2026 4:16:59 PM

Table 1
Confirmation Soil Sample Analytical Data Summary
Apache Corp., EBDU #37
Lea County, New Mexico

2	**BH-2**	**Bottom**	10	8/10/2020	In-Situ	--	--	--	--	--	--	79.7
			12	8/10/2020	In-Situ	--	--	--	--	--	--	18.4
			14	8/10/2020	In-Situ	--	--	--	--	--	--	10.1
			16	8/10/2020	In-Situ	--	--	--	--	--	--	10.3
			18	8/10/2020	In-Situ	--	--	--	--	--	--	9.67
			20	8/10/2020	In-Situ	--	--	--	--	--	--	9.64
			25	8/10/2020	In-Situ	--	--	--	--	--	--	11.6
2	**BH-3**	**Bottom**	10	8/10/2020	In-Situ	--	--	--	--	--	--	774
			12	8/10/2020	In-Situ	--	--	--	--	--	--	666
			14	8/10/2020	In-Situ	--	--	--	--	--	--	419
			16	8/10/2020	In-Situ	--	--	--	--	--	--	60.2
			18	8/10/2020	In-Situ	--	--	--	--	--	--	89.3
			20	8/10/2020	In-Situ	--	--	--	--	--	--	227
			25	8/10/2020	In-Situ	--	--	--	--	--	--	32.7
2	**BH-4**	**Bottom**	10	8/10/2020	In-Situ	--	--	--	--	--	--	24
			12	8/10/2020	In-Situ	--	--	--	--	--	--	12
			14	8/10/2020	In-Situ	--	--	--	--	--	--	10.3
			16	8/10/2020	In-Situ	--	--	--	--	--	--	15
			18	8/10/2020	In-Situ	--	--	--	--	--	--	12.7
			20	8/10/2020	In-Situ	--	--	--	--	--	--	11.8
			25	8/10/2020	In-Situ	--	--	--	--	--	--	13.4
2	**BH-5**	**Bottom**	10	8/11/2020	In-Situ	--	--	--	--	--	--	10.2
			12	8/11/2020	In-Situ	--	--	--	--	--	--	9.94
			14	8/11/2020	In-Situ	--	--	--	--	--	--	9.78
			16	8/11/2020	In-Situ	--	--	--	--	--	--	12.2
			18	8/11/2020	In-Situ	--	--	--	--	--	--	9.3
			20	8/11/2020	In-Situ	--	--	--	--	--	--	9.77
												10.5

Notes: analysis performed by Xenco Laboratories, Midland, Texas, by SW-846 Method 8021B (BETX), Method 8015 (TPH) and Method 300 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
<: denotes concentration less than analytical method reporting limit
Bold and Highlighted exceeds OCD remediation action limits and excavated

Figures

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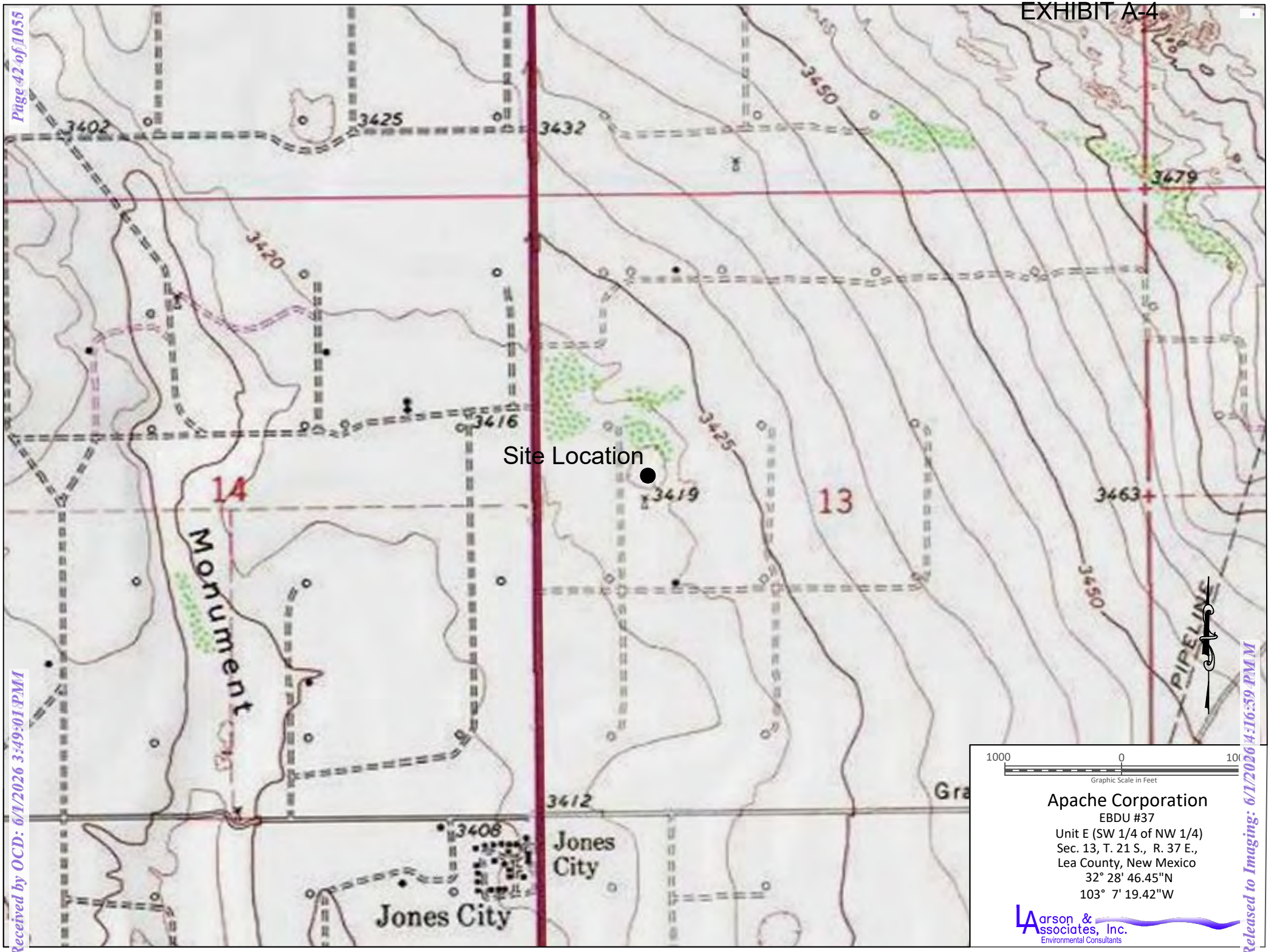
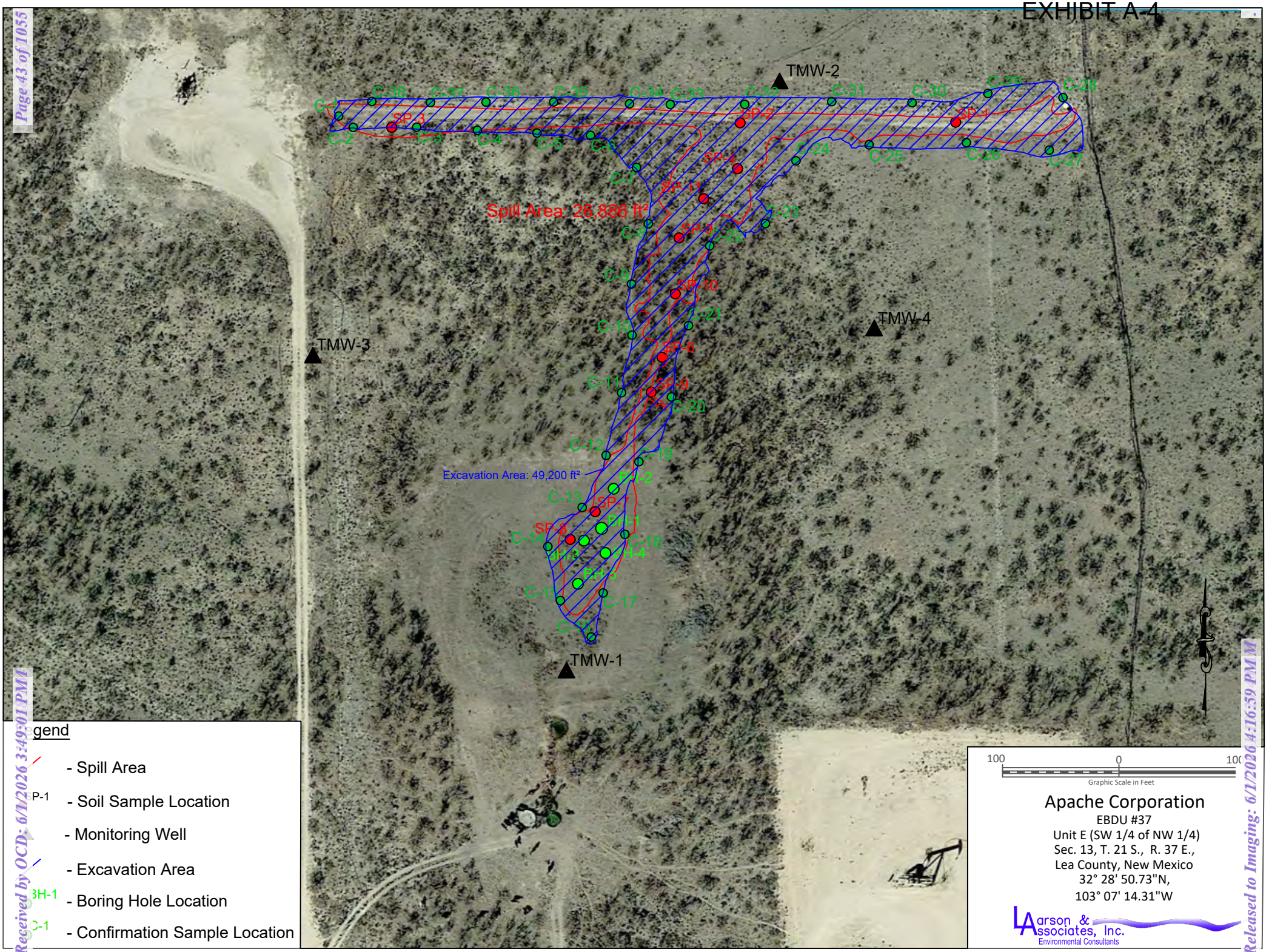


Figure 1 - Topographic Map

Received by OCD: 6/1/2026 3:49:01 PM

Released to Imaging: 6/1/2026 4:16:59 PM

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Legend

- Spill Area
- Soil Sample Location
- Monitoring Well
- Excavation Area
- Boring Hole Location
- Confirmation Sample Location

100 0 100
Graphic Scale in Feet

Apache Corporation
EBDU #37
Unit E (SW 1/4 of NW 1/4)
Sec. 13, T. 21 S., R. 37 E.,
Lea County, New Mexico
32° 28' 50.73"N,
103° 07' 14.31"W

Larson & Associates, Inc.
Environmental Consultants

Figure 2 - Aerial Map Showing Excavation Area

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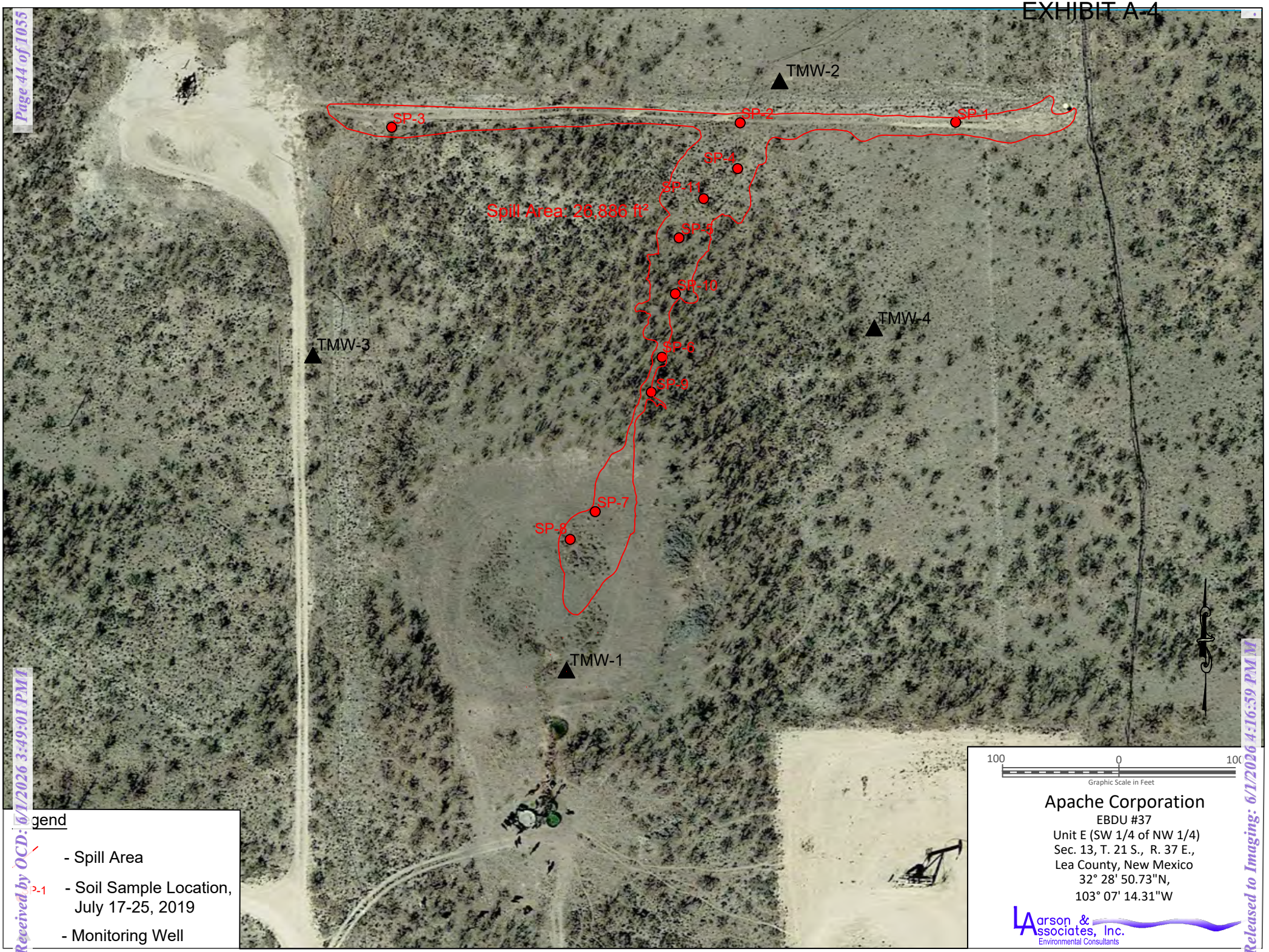


Figure 3 - Site Map Showing Monitoring Well Locations

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Released to Imaging: 6/1/2026 4:16:59 PM

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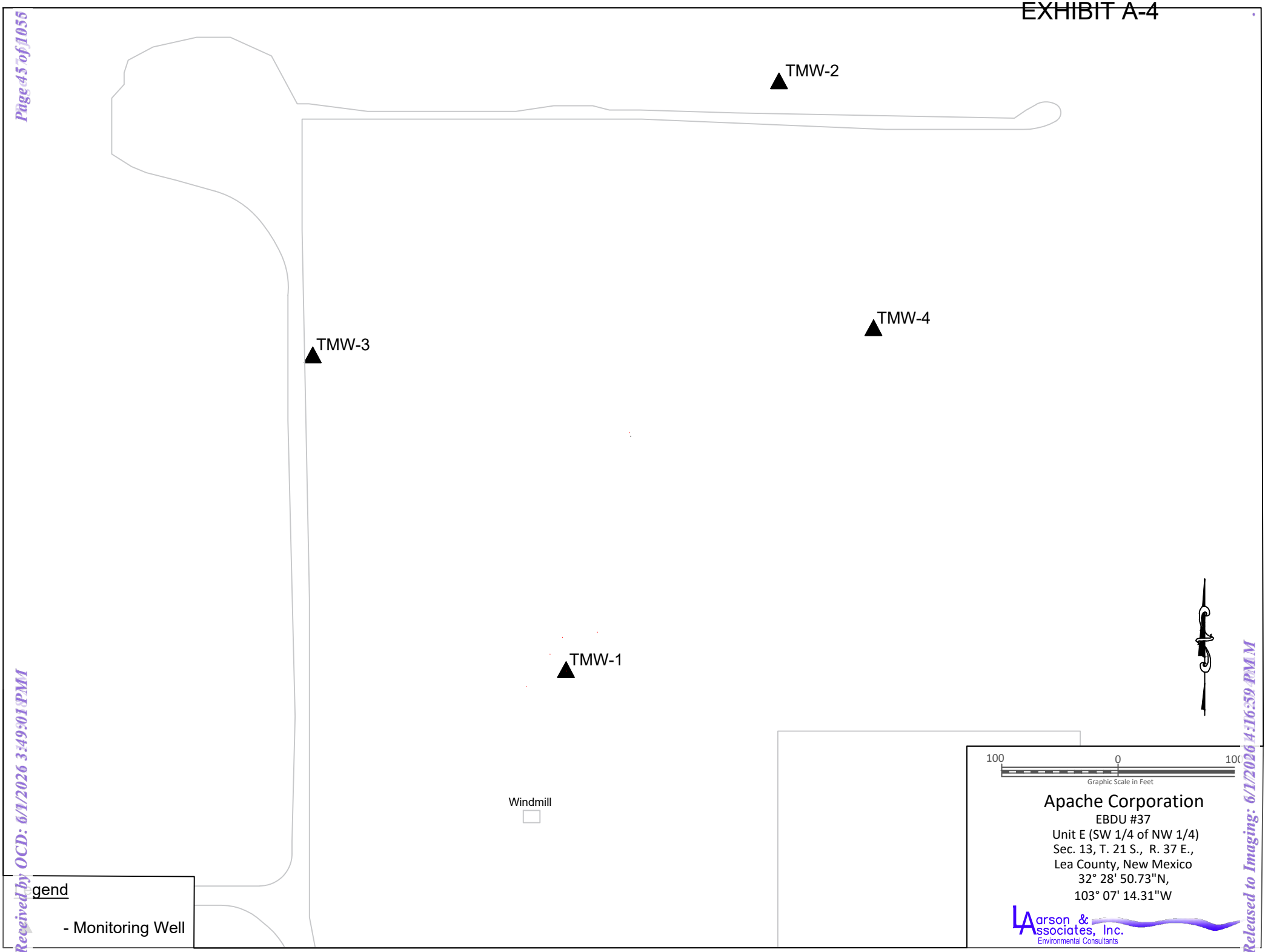


Figure 4 - Site Map Showing Monitoring Well Locations

Received by OCD: 6/1/2026 3:49:01 PM

Released to Imaging: 6/1/2026 4:16:59 PM

Appendix A

Initial C-141

Received by OCD- 7/26/2019 8:04:17 AM
Received by OCD: 6/1/2026 3:49:01 PM

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Release Notification

Responsible Party

Responsible Party: Apache Corporation	OGRID 873
Contact Name: Bruce Baker	Contact Telephone: (432) 631-6982
Contact email: Larry.Baker@apachecorp.com	Incident # *(assigned by OCD)*
Contact Mailing Address: 2350 W. Marland Blvd, Hobbs, NM 88240	

Location of Release Source

Latitude: W 32.4807053 Longitude: N -103.123085

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: EBDU #37 WIW	Site Type: Water Injection Well
Date Release Discovered: July 14, 2019	API # *3002506556*

Unit Letter	Section	Township	Range	County
E	12	21S	37E	LEA

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name: William Stephens*)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (Unknown bbls)	Volume Recovered (Unknown bbls)
☒ Produced Water	Volume Released (Unknown bbls)	Volume Recovered (Unknown bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Isolation valve failure due to internal corrosion.

Released to Imaging: 6/1/2026 4:16:59 PM

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Via email given to NM OCD by Bruce Baker, Senior Environmental Technician, Apache Corporation

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Jeff Broom Title: Environmental Technician

Signature: _____ Date: 07/24/2019

Email: Jeffrey.Broom@apachecorp.com Telephone: (432) 664-4677

OCD Only

Received by: Dylan Rose-Coss Date: 08/09/2019

Appendix B

Laboratory Reports

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-001		667044-002		667044-003		667044-004		667044-005		667044-006	
	Field Id:	C-1		C-2		C-3		C-4		C-5		C-6	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:45		07.13.2020 10:35		07.13.2020 10:30		07.13.2020 10:27		07.13.2020 10:23		07.13.2020 10:20	
BTEX by EPA 8021B	***Extracted:***	07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30	
	Analyzed:	07.18.2020 02:55		07.18.2020 03:15		07.18.2020 03:36		07.18.2020 03:56		07.18.2020 04:17		07.18.2020 04:37	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	0.00262	0.00199	0.00205	0.00200	0.00262	0.00200
Ethylbenzene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00402	0.00402	<0.00403	0.00403	<0.00403	0.00403	<0.00398	0.00398	<0.00399	0.00399	<0.00399	0.00399
o-Xylene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	0.00262	0.00199	0.00205	0.00200	0.00262	0.00200
Chloride by EPA 300	***Extracted:***	07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30	
	Analyzed:	07.16.2020 16:26		07.16.2020 16:32		07.16.2020 16:50		07.16.2020 16:57		07.16.2020 17:03		07.16.2020 17:09	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1150	4.96	3570	24.9	1990	25.0	3060	25.2	650	4.96	1060	4.99
TPH by SW8015 Mod	***Extracted:***	07.16.2020 12:00		07.16.2020 12:00		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.16.2020 14:05		07.16.2020 14:26		07.15.2020 12:50		07.15.2020 13:55		07.15.2020 14:17		07.15.2020 14:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		83.3	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0
Total TPH		83.3	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Holly Taylor

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-007		667044-008		667044-009		667044-010		667044-011		667044-012	
	Field Id:	C-7		C-8		C-9		C-10		C-11		C-12	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:15		07.13.2020 10:10		07.13.2020 10:05		07.13.2020 10:00		07.13.2020 09:58		07.13.2020 09:55	
BTEX by EPA 8021B	***Extracted:***	07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30	
	Analyzed:	07.18.2020 04:57		07.18.2020 05:18		07.18.2020 05:38		07.18.2020 05:59		07.18.2020 11:01		07.18.2020 11:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
Toluene		0.00378	0.00200	<0.00198	0.00198	0.00438	0.00199	0.00336	0.00201	0.00539	0.00200	0.00415	0.00198
Ethylbenzene		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
m,p-Xylenes		<0.00400	0.00400	<0.00397	0.00397	<0.00398	0.00398	<0.00402	0.00402	<0.00399	0.00399	<0.00396	0.00396
o-Xylene		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
Total Xylenes		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
Total BTEX		0.00378	0.00200	<0.00198	0.00198	0.00438	0.00199	0.00336	0.00201	0.00539	0.00200	0.00415	0.00198
Chloride by EPA 300	***Extracted:***	07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45	
	Analyzed:	07.16.2020 17:15		07.16.2020 17:21		07.16.2020 17:27		07.21.2020 01:05		07.21.2020 01:26		07.21.2020 01:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		12100	101	24800	250	4160	25.0	2190	24.9	44.8	5.01	626	5.03
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 15:00		07.15.2020 15:22		07.15.2020 15:44		07.15.2020 16:06		07.15.2020 16:27		07.15.2020 16:49	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Total TPH		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0

BRL - Below Reporting Limit

Holly Taylor

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-013		667044-014		667044-015		667044-016		667044-017		667044-018	
	Field Id:	C-13		C-14		C-15		C-16		C-17		C-18	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 09:51		07.13.2020 09:48		07.13.2020 09:45		07.13.2020 09:48		07.13.2020 09:52		07.13.2020 09:56	
BTEX by EPA 8021B	***Extracted:***	07.17.2020 14:30		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00	
	Analyzed:	07.18.2020 11:42		07.22.2020 03:09		07.22.2020 03:29		07.22.2020 03:50		07.22.2020 04:10		07.22.2020 04:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Toluene		0.00252	0.00198	0.00570	0.00200	0.00254	0.00200	0.00552	0.00200	0.00275	0.00200	0.00722	0.00200
Ethylbenzene		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00397	0.00397	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400
o-Xylene		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		0.00252	0.00198	0.00570	0.00200	0.00254	0.00200	0.00552	0.00200	0.00275	0.00200	0.00722	0.00200
Chloride by EPA 300	***Extracted:***	07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45	
	Analyzed:	07.21.2020 01:37		07.21.2020 01:53		07.21.2020 01:58		07.21.2020 02:03		07.21.2020 02:08		07.21.2020 02:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		44.1	4.99	14.1	4.97	24.3	4.96	229	5.04	927	5.03	227	5.00
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 17:33		07.15.2020 17:55		07.15.2020 18:17		07.15.2020 18:38		07.15.2020 19:00		07.15.2020 19:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0
Diesel Range Organics (DRO)		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0
Total TPH		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0

BRL - Below Reporting Limit

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Holly Taylor

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-019		667044-020		667044-021		667044-022		667044-023		667044-024	
	Field Id:	C-19		C-20		C-21		C-22		C-23		C-24	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:10		07.13.2020 10:04		07.13.2020 10:08		07.13.2020 10:12		07.13.2020 10:18		07.13.2020 10:22	
BTEX by EPA 8021B	***Extracted:***	07.22.2020 08:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00	
	Analyzed:	07.22.2020 09:17		07.22.2020 04:51		07.22.2020 05:11		07.22.2020 05:32		07.22.2020 05:52		07.22.2020 06:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Toluene		0.00557	0.00199	0.00968	0.00200	0.00705	0.00200	0.00493	0.00200	0.00339	0.00200	0.00732	0.00200
Ethylbenzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00398	0.00398	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400
o-Xylene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		0.00557	0.00199	0.00968	0.00200	0.00705	0.00200	0.00493	0.00200	0.00339	0.00200	0.00732	0.00200
Chloride by EPA 300	***Extracted:***	07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45	
	Analyzed:	07.21.2020 02:19		07.21.2020 02:34		07.21.2020 02:40		07.21.2020 02:55		07.21.2020 03:00		07.21.2020 03:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		60.6	4.98	44.3	5.03	1290	4.96	704	4.99	6200	49.5	1110	4.97
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 19:43		07.15.2020 20:04		07.15.2020 20:26		07.15.2020 20:47		07.15.2020 12:50		07.15.2020 13:55	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0
Diesel Range Organics (DRO)		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0
Total TPH		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0

BRL - Below Reporting Limit

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-025		667044-026		667044-027		667044-028		667044-029		667044-030	
	Field Id:	C-25		C-26		C-27		C-28		C-29		C-30	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:26		07.13.2020 10:32		07.13.2020 10:36		07.13.2020 10:40		07.13.2020 10:44		07.13.2020 10:48	
BTEX by EPA 8021B	***Extracted:***	07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30	
	Analyzed:	07.22.2020 21:47		07.22.2020 22:08		07.22.2020 22:28		07.22.2020 22:49		07.22.2020 23:09		07.22.2020 23:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
Toluene		0.00464	0.00201	<0.00200	0.00200	0.00482	0.00200	<0.00200	0.00200	0.00906	0.00199	0.00556	0.00198
Ethylbenzene		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
m,p-Xylenes		<0.00402	0.00402	<0.00401	0.00401	<0.00401	0.00401	<0.00401	0.00401	<0.00398	0.00398	<0.00396	0.00396
o-Xylene		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
Total Xylenes		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
Total BTEX		0.00464	0.00201	<0.00200	0.00200	0.00482	0.00200	<0.00200	0.00200	0.00906	0.00199	0.00556	0.00198
Chloride by EPA 300	***Extracted:***	07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.16.2020 15:20		07.16.2020 15:20	
	Analyzed:	07.21.2020 03:11		07.21.2020 03:16		07.21.2020 03:21		07.21.2020 03:27		07.16.2020 18:23		07.16.2020 18:04	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		254	5.02	5280	25.0	1210	4.99	8280	49.7	197	5.03	264 X	4.96
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 14:17		07.15.2020 14:38		07.15.2020 15:00		07.15.2020 15:22		07.15.2020 15:44		07.15.2020 16:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Total TPH		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0

BRL - Below Reporting Limit

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-031		667044-032		667044-033		667044-034		667044-035		667044-036	
	Field Id:	C-31		C-32		C-33		C-34		C-35		C-36	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:52		07.13.2020 10:56		07.13.2020 11:00		07.13.2020 11:05		07.13.2020 11:01		07.13.2020 10:52	
BTEX by EPA 8021B	***Extracted:***	07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30	
	Analyzed:	07.22.2020 23:50		07.23.2020 00:11		07.23.2020 00:31		07.23.2020 00:52		07.23.2020 02:14		07.23.2020 02:34	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Toluene		<0.00200	0.00200	0.00325	0.00199	0.00712	0.00199	0.00781	0.00199	0.00876	0.00198	0.00478	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
m,p-Xylenes		<0.00400	0.00400	<0.00398	0.00398	<0.00398	0.00398	<0.00398	0.00398	<0.00397	0.00397	<0.00400	0.00400
o-Xylene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	0.00325	0.00199	0.00712	0.00199	0.00781	0.00199	0.00876	0.00198	0.00478	0.00200
Chloride by EPA 300	***Extracted:***	07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20	
	Analyzed:	07.16.2020 18:29		07.16.2020 18:35		07.16.2020 18:41		07.16.2020 18:59		07.16.2020 19:06		07.16.2020 19:12	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		42.1	4.99	867	4.97	553	4.99	242	5.00	9.23	5.03	64.4	5.05
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 16:27		07.15.2020 16:49		07.15.2020 17:33		07.15.2020 17:55		07.15.2020 18:17		07.15.2020 18:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0
Total TPH		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0

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Holly Taylor

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested							
	Lab Id:	667044-037		667044-038			
	Field Id:	C-37		C-38			
	Depth:						
	Matrix:	SOIL		SOIL			
	Sampled:	07.13.2020 10:52		07.13.2020 10:48			
BTEX by EPA 8021B	***Extracted:***	07.22.2020 16:30		07.22.2020 16:30			
	Analyzed:	07.23.2020 02:55		07.23.2020 03:15			
	Units/RL:	mg/kg	RL	mg/kg	RL		
Benzene		<0.00200	0.00200	<0.00199	0.00199		
Toluene		0.00502	0.00200	0.00857	0.00199		
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199		
m,p-Xylenes		<0.00401	0.00401	<0.00398	0.00398		
o-Xylene		<0.00200	0.00200	<0.00199	0.00199		
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199		
Total BTEX		0.00502	0.00200	0.00857	0.00199		
Chloride by EPA 300	***Extracted:***	07.16.2020 15:20		07.16.2020 15:20			
	Analyzed:	07.16.2020 19:30		07.16.2020 19:49			
	Units/RL:	mg/kg	RL	mg/kg	RL		
Chloride		14.6 X	4.99	28.7	5.04		
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30			
	Analyzed:	07.15.2020 19:00		07.15.2020 19:22			
	Units/RL:	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<49.9	49.9		
Diesel Range Organics (DRO)		<49.9	49.9	<49.9	49.9		
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<49.9	49.9		
Total TPH		<49.9	49.9	<49.9	49.9		

BRL - Below Reporting Limit

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Holly Taylor

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Analytical Report 667044

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU #37

19-0112-49

07.24.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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07.24.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **667044**
EBDU #37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 667044. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 667044 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

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Sample Cross Reference 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-1	S	07.13.2020 10:45		667044-001
C-2	S	07.13.2020 10:35		667044-002
C-3	S	07.13.2020 10:30		667044-003
C-4	S	07.13.2020 10:27		667044-004
C-5	S	07.13.2020 10:23		667044-005
C-6	S	07.13.2020 10:20		667044-006
C-7	S	07.13.2020 10:15		667044-007
C-8	S	07.13.2020 10:10		667044-008
C-9	S	07.13.2020 10:05		667044-009
C-10	S	07.13.2020 10:00		667044-010
C-11	S	07.13.2020 09:58		667044-011
C-12	S	07.13.2020 09:55		667044-012
C-13	S	07.13.2020 09:51		667044-013
C-14	S	07.13.2020 09:48		667044-014
C-15	S	07.13.2020 09:45		667044-015
C-16	S	07.13.2020 09:48		667044-016
C-17	S	07.13.2020 09:52		667044-017
C-18	S	07.13.2020 09:56		667044-018
C-19	S	07.13.2020 10:10		667044-019
C-20	S	07.13.2020 10:04		667044-020
C-21	S	07.13.2020 10:08		667044-021
C-22	S	07.13.2020 10:12		667044-022
C-23	S	07.13.2020 10:18		667044-023
C-24	S	07.13.2020 10:22		667044-024
C-25	S	07.13.2020 10:26		667044-025
C-26	S	07.13.2020 10:32		667044-026
C-27	S	07.13.2020 10:36		667044-027
C-28	S	07.13.2020 10:40		667044-028
C-29	S	07.13.2020 10:44		667044-029
C-30	S	07.13.2020 10:48		667044-030
C-31	S	07.13.2020 10:52		667044-031
C-32	S	07.13.2020 10:56		667044-032
C-33	S	07.13.2020 11:00		667044-033
C-34	S	07.13.2020 11:05		667044-034
C-35	S	07.13.2020 11:01		667044-035
C-36	S	07.13.2020 10:52		667044-036
C-37	S	07.13.2020 10:52		667044-037
C-38	S	07.13.2020 10:48		667044-038

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU #37

Project ID: *19-0112-49*
Work Order Number(s): *667044*

Report Date: *07.24.2020*
Date Received: *07.13.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3131896 Chloride by EPA 300

Lab Sample ID 667044-037 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 667044-029, -030, -031, -032, -033, -034, -035, -036, -037, -038.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3132080 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 667044-013.

Lab Sample ID 667044-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 667044-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013.
The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3132276 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 667044-017,667044-018,667044-024,667044-022,667044-023,667044-020.

Batch: LBA-3132394 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 667044-019.

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU #37

Project ID: *19-0112-49*
Work Order Number(s): *667044*

Report Date: *07.24.2020*
Date Received: *07.13.2020*

Batch: LBA-3132400 BTEX by EPA 8021B
Lab Sample ID 667044-031 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Ethylbenzene, Toluene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 667044-025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038.
The Laboratory Control Sample for Toluene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Ethylbenzene Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.
Samples in the analytical batch are: 667044-025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-1**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-001	Date Collected:	07.13.2020 10:45		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1150**	4.96	mg/kg	07.16.2020 16:26		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.16.2020 12:00	Basis:	Wet Weight
Seq Number:	3131955				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.16.2020 14:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	**83.3**	49.8	mg/kg	07.16.2020 14:05		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.16.2020 14:05	U	1
Total TPH	PHC635	**83.3**	49.8	mg/kg	07.16.2020 14:05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-130	07.16.2020 14:05	
o-Terphenyl	84-15-1	106	%	70-130	07.16.2020 14:05	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-1**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-001	Date Collected:	07.13.2020 10:45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.18.2020 02:55	UX	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.18.2020 02:55	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.18.2020 02:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.18.2020 02:55	
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.18.2020 02:55	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-2**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-002	Date Collected:	07.13.2020 10:35		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3570**	24.9	mg/kg	07.16.2020 16:32		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.16.2020 12:00	Basis:	Wet Weight
Seq Number:	3131955				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-130	07.16.2020 14:26	
o-Terphenyl	84-15-1	102	%	70-130	07.16.2020 14:26	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-2**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-002	Date Collected:	07.13.2020 10:35		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.18.2020 03:15	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	07.18.2020 03:15	
4-Bromofluorobenzene	460-00-4	120	%	70-130	07.18.2020 03:15	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-3**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-003	Date Collected:	07.13.2020 10:30		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1990**	25.0	mg/kg	07.16.2020 16:50		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	07.15.2020 12:50	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 12:50	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-3**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-003	Date Collected:	07.13.2020 10:30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.18.2020 03:36	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.18.2020 03:36	
4-Bromofluorobenzene	460-00-4	116	%	70-130	07.18.2020 03:36	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-4**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-004	Date Collected:	07.13.2020 10:27		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3060**	25.2	mg/kg	07.16.2020 16:57		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-130	07.15.2020 13:55	
o-Terphenyl	84-15-1	99	%	70-130	07.15.2020 13:55	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-4**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-004	Date Collected:	07.13.2020 10:27		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
Toluene	108-88-3	**0.00262**	0.00199	mg/kg	07.18.2020 03:56		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.18.2020 03:56	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
Total BTEX		**0.00262**	0.00199	mg/kg	07.18.2020 03:56		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	119	%	70-130	07.18.2020 03:56	
1,4-Difluorobenzene	540-36-3	114	%	70-130	07.18.2020 03:56	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-5**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-005	Date Collected:	07.13.2020 10:23		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**650**	4.96	mg/kg	07.16.2020 17:03		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-130	07.15.2020 14:17	
o-Terphenyl	84-15-1	98	%	70-130	07.15.2020 14:17	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-5**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-005	Date Collected:	07.13.2020 10:23		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
Toluene	108-88-3	**0.00205**	0.00200	mg/kg	07.18.2020 04:17		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.18.2020 04:17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
Total BTEX		**0.00205**	0.00200	mg/kg	07.18.2020 04:17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	70-130	07.18.2020 04:17	
4-Bromofluorobenzene	460-00-4	120	%	70-130	07.18.2020 04:17	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-6**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-006	Date Collected:	07.13.2020 10:20		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1060**	4.99	mg/kg	07.16.2020 17:09		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 14:38	
o-Terphenyl	84-15-1	94	%	70-130	07.15.2020 14:38	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-6**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-006	Date Collected:	07.13.2020 10:20		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
Toluene	108-88-3	**0.00262**	0.00200	mg/kg	07.18.2020 04:37		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.18.2020 04:37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
Total BTEX		**0.00262**	0.00200	mg/kg	07.18.2020 04:37		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	07.18.2020 04:37	
1,4-Difluorobenzene	540-36-3	114	%	70-130	07.18.2020 04:37	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-7**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-007	Date Collected:	07.13.2020 10:15		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12100**	101	mg/kg	07.16.2020 17:15		20

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-130	07.15.2020 15:00	
o-Terphenyl	84-15-1	101	%	70-130	07.15.2020 15:00	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-7**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-007	Date Collected:	07.13.2020 10:15		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
Toluene	108-88-3	**0.00378**	0.00200	mg/kg	07.18.2020 04:57		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.18.2020 04:57	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
Total BTEX		**0.00378**	0.00200	mg/kg	07.18.2020 04:57		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	126	%	70-130	07.18.2020 04:57	
1,4-Difluorobenzene	540-36-3	118	%	70-130	07.18.2020 04:57	

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EBDU #37

Sample Id: **C-8** Matrix: Soil Date Received:07.13.2020 16:43

Lab Sample Id: 667044-008 Date Collected: 07.13.2020 10:10

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 07.16.2020 11:30 Basis: Wet Weight

Seq Number: 3131895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24800**	250	mg/kg	07.16.2020 17:21		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight

Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-130	07.15.2020 15:22	
o-Terphenyl	84-15-1	106	%	70-130	07.15.2020 15:22	

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EBDU #37

Sample Id:	**C-8**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-008	Date Collected:	07.13.2020 10:10		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.18.2020 05:18	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	07.18.2020 05:18	
4-Bromofluorobenzene	460-00-4	127	%	70-130	07.18.2020 05:18	

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EBDU #37

Sample Id:	**C-9**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-009	Date Collected:	07.13.2020 10:05		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4160**	25.0	mg/kg	07.16.2020 17:27		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	07.15.2020 15:44	
o-Terphenyl	84-15-1	96	%	70-130	07.15.2020 15:44	

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EBDU #37

Sample Id:	**C-9**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-009	Date Collected:	07.13.2020 10:05		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
Toluene	108-88-3	**0.00438**	0.00199	mg/kg	07.18.2020 05:38		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.18.2020 05:38	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
Total BTEX		**0.00438**	0.00199	mg/kg	07.18.2020 05:38		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	07.18.2020 05:38	
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.18.2020 05:38	

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EBDU #37

Sample Id:	**C-10**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-010	Date Collected:	07.13.2020 10:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2190**	24.9	mg/kg	07.21.2020 01:05		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-130	07.15.2020 16:06	
o-Terphenyl	84-15-1	98	%	70-130	07.15.2020 16:06	

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EBDU #37

Sample Id:	**C-10**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-010	Date Collected:	07.13.2020 10:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
Toluene	108-88-3	**0.00336**	0.00201	mg/kg	07.18.2020 05:59		1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.18.2020 05:59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
Total BTEX		**0.00336**	0.00201	mg/kg	07.18.2020 05:59		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	128	%	70-130	07.18.2020 05:59	
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.18.2020 05:59	

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EBDU #37

Sample Id:	**C-11**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-011	Date Collected:	07.13.2020 09:58		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.8**	5.01	mg/kg	07.21.2020 01:26		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 16:27	
o-Terphenyl	84-15-1	92	%	70-130	07.15.2020 16:27	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-11**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-011	Date Collected:	07.13.2020 09:58		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
Toluene	108-88-3	**0.00539**	0.00200	mg/kg	07.18.2020 11:01		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.18.2020 11:01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
Total BTEX		**0.00539**	0.00200	mg/kg	07.18.2020 11:01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	113	%	70-130	07.18.2020 11:01	
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.18.2020 11:01	

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EBDU #37

Sample Id:	**C-12**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-012	Date Collected:	07.13.2020 09:55		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**626**	5.03	mg/kg	07.21.2020 01:32		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-130	07.15.2020 16:49	
o-Terphenyl	84-15-1	97	%	70-130	07.15.2020 16:49	

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EBDU #37

Sample Id:	**C-12**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-012	Date Collected:	07.13.2020 09:55		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
Toluene	108-88-3	**0.00415**	0.00198	mg/kg	07.18.2020 11:22		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	07.18.2020 11:22	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
Total BTEX		**0.00415**	0.00198	mg/kg	07.18.2020 11:22		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	127	%	70-130	07.18.2020 11:22	
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.18.2020 11:22	

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EBDU #37

Sample Id: **C-13** Matrix: Soil Date Received:07.13.2020 16:43

Lab Sample Id: 667044-013 Date Collected: 07.13.2020 09:51

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 07.20.2020 12:45 Basis: Wet Weight

Seq Number: 3132156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.1**	4.99	mg/kg	07.21.2020 01:37		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight

Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-130	07.15.2020 17:33	
o-Terphenyl	84-15-1	106	%	70-130	07.15.2020 17:33	

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EBDU #37

Sample Id:	**C-13**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-013	Date Collected:	07.13.2020 09:51		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
Toluene	108-88-3	**0.00252**	0.00198	mg/kg	07.18.2020 11:42		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.18.2020 11:42	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
Total BTEX		**0.00252**	0.00198	mg/kg	07.18.2020 11:42		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	07.18.2020 11:42	
4-Bromofluorobenzene	460-00-4	137	%	70-130	07.18.2020 11:42	**

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-14**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-014	Date Collected:	07.13.2020 09:48		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**14.1**	4.97	mg/kg	07.21.2020 01:53		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-130	07.15.2020 17:55	
o-Terphenyl	84-15-1	101	%	70-130	07.15.2020 17:55	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-14**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-014	Date Collected:	07.13.2020 09:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
Toluene	108-88-3	**0.00570**	0.00200	mg/kg	07.22.2020 03:09		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 03:09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
Total BTEX		**0.00570**	0.00200	mg/kg	07.22.2020 03:09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	07.22.2020 03:09	
4-Bromofluorobenzene	460-00-4	117	%	70-130	07.22.2020 03:09	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-15**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-015	Date Collected:	07.13.2020 09:45		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.3**	4.96	mg/kg	07.21.2020 01:58		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-130	07.15.2020 18:17	
o-Terphenyl	84-15-1	99	%	70-130	07.15.2020 18:17	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-15**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-015	Date Collected:	07.13.2020 09:45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
Toluene	108-88-3	**0.00254**	0.00200	mg/kg	07.22.2020 03:29		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 03:29	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
Total BTEX		**0.00254**	0.00200	mg/kg	07.22.2020 03:29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	70-130	07.22.2020 03:29	
4-Bromofluorobenzene	460-00-4	121	%	70-130	07.22.2020 03:29	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id: **C-16** Matrix: Soil Date Received:07.13.2020 16:43

Lab Sample Id: 667044-016 Date Collected: 07.13.2020 09:48

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 07.20.2020 12:45 Basis: Wet Weight

Seq Number: 3132156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**229**	5.04	mg/kg	07.21.2020 02:03		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight

Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-130	07.15.2020 18:38	
o-Terphenyl	84-15-1	104	%	70-130	07.15.2020 18:38	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-16**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-016	Date Collected:	07.13.2020 09:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
Toluene	108-88-3	**0.00552**	0.00200	mg/kg	07.22.2020 03:50		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 03:50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
Total BTEX		**0.00552**	0.00200	mg/kg	07.22.2020 03:50		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	130	%	70-130	07.22.2020 03:50	
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 03:50	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-17**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-017	Date Collected:	07.13.2020 09:52		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**927**	5.03	mg/kg	07.21.2020 02:08		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-130	07.15.2020 19:00	
o-Terphenyl	84-15-1	100	%	70-130	07.15.2020 19:00	

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EBDU #37

Sample Id:	**C-17**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-017	Date Collected:	07.13.2020 09:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
Toluene	108-88-3	**0.00275**	0.00200	mg/kg	07.22.2020 04:10		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 04:10	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
Total BTEX		**0.00275**	0.00200	mg/kg	07.22.2020 04:10		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	07.22.2020 04:10	
4-Bromofluorobenzene	460-00-4	136	%	70-130	07.22.2020 04:10	**

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EBDU #37

Sample Id:	**C-18**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-018	Date Collected:	07.13.2020 09:56		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**227**	5.00	mg/kg	07.21.2020 02:13		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	07.15.2020 19:22	
o-Terphenyl	84-15-1	93	%	70-130	07.15.2020 19:22	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-18**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-018	Date Collected:	07.13.2020 09:56		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
Toluene	108-88-3	**0.00722**	0.00200	mg/kg	07.22.2020 04:30		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 04:30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
Total BTEX		**0.00722**	0.00200	mg/kg	07.22.2020 04:30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 04:30	
4-Bromofluorobenzene	460-00-4	132	%	70-130	07.22.2020 04:30	**

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id: **C-19** Matrix: Soil Date Received:07.13.2020 16:43
Lab Sample Id: 667044-019 Date Collected: 07.13.2020 10:10

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 07.20.2020 12:45 Basis: Wet Weight
Seq Number: 3132156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**60.6**	4.98	mg/kg	07.21.2020 02:19		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DVM % Moisture:
Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight
Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 19:43	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 19:43	

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EBDU #37

Sample Id:	**C-19**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-019	Date Collected:	07.13.2020 10:10		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 08:00	Basis:	Wet Weight
Seq Number:	3132394				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
Toluene	108-88-3	**0.00557**	0.00199	mg/kg	07.22.2020 09:17		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.2020 09:17	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
Total BTEX		**0.00557**	0.00199	mg/kg	07.22.2020 09:17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	131	%	70-130	07.22.2020 09:17	**
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 09:17	

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EBDU #37

Sample Id:	**C-20**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-020	Date Collected:	07.13.2020 10:04		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.3**	5.03	mg/kg	07.21.2020 02:34		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 20:04	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 20:04	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-20**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-020	Date Collected:	07.13.2020 10:04		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
Toluene	108-88-3	**0.00968**	0.00200	mg/kg	07.22.2020 04:51		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 04:51	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
Total BTEX		**0.00968**	0.00200	mg/kg	07.22.2020 04:51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 04:51	
4-Bromofluorobenzene	460-00-4	136	%	70-130	07.22.2020 04:51	**

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EBDU #37

Sample Id:	**C-21**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-021	Date Collected:	07.13.2020 10:08		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1290**	4.96	mg/kg	07.21.2020 02:40		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-130	07.15.2020 20:26	
o-Terphenyl	84-15-1	97	%	70-130	07.15.2020 20:26	

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EBDU #37

Sample Id:	**C-21**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-021	Date Collected:	07.13.2020 10:08		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
Toluene	108-88-3	**0.00705**	0.00200	mg/kg	07.22.2020 05:11		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 05:11	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
Total BTEX		**0.00705**	0.00200	mg/kg	07.22.2020 05:11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	129	%	70-130	07.22.2020 05:11	
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 05:11	

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EBDU #37

Sample Id: **C-22** Matrix: Soil Date Received:07.13.2020 16:43

Lab Sample Id: 667044-022 Date Collected: 07.13.2020 10:12

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 07.20.2020 12:45 Basis: Wet Weight

Seq Number: 3132156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**704**	4.99	mg/kg	07.21.2020 02:55		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight

Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 20:47	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 20:47	

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EBDU #37

Sample Id:	**C-22**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-022	Date Collected:	07.13.2020 10:12		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
Toluene	108-88-3	**0.00493**	0.00200	mg/kg	07.22.2020 05:32		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 05:32	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
Total BTEX		**0.00493**	0.00200	mg/kg	07.22.2020 05:32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	137	%	70-130	07.22.2020 05:32	**
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 05:32	

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EBDU #37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-023	Date Collected:	07.13.2020 10:18		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6200**	49.5	mg/kg	07.21.2020 03:00		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 12:50	
o-Terphenyl	84-15-1	85	%	70-130	07.15.2020 12:50	

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EBDU #37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-023	Date Collected:	07.13.2020 10:18		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
Toluene	108-88-3	**0.00339**	0.00200	mg/kg	07.22.2020 05:52		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 05:52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
Total BTEX		**0.00339**	0.00200	mg/kg	07.22.2020 05:52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	134	%	70-130	07.22.2020 05:52	**
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 05:52	

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EBDU #37

Sample Id:	**C-24**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-024	Date Collected:	07.13.2020 10:22		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1110**	4.97	mg/kg	07.21.2020 03:06		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-130	07.15.2020 13:55	
o-Terphenyl	84-15-1	85	%	70-130	07.15.2020 13:55	

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EBDU #37

Sample Id:	**C-24**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-024	Date Collected:	07.13.2020 10:22		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
Toluene	108-88-3	**0.00732**	0.00200	mg/kg	07.22.2020 06:13		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 06:13	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
Total BTEX		**0.00732**	0.00200	mg/kg	07.22.2020 06:13		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	133	%	70-130	07.22.2020 06:13	**
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 06:13	

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EBDU #37

Sample Id:	**C-25**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-025	Date Collected:	07.13.2020 10:26		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**254**	5.02	mg/kg	07.21.2020 03:11		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	07.15.2020 14:17	
o-Terphenyl	84-15-1	80	%	70-130	07.15.2020 14:17	

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EBDU #37

Sample Id:	**C-25**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-025	Date Collected:	07.13.2020 10:26		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
Toluene	108-88-3	**0.00464**	0.00201	mg/kg	07.22.2020 21:47		1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.22.2020 21:47	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
Total BTEX		**0.00464**	0.00201	mg/kg	07.22.2020 21:47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.22.2020 21:47	
4-Bromofluorobenzene	460-00-4	98	%	70-130	07.22.2020 21:47	

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EBDU #37

Sample Id:	**C-26**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-026	Date Collected:	07.13.2020 10:32		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5280**	25.0	mg/kg	07.21.2020 03:16		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 14:38	
o-Terphenyl	84-15-1	91	%	70-130	07.15.2020 14:38	

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EBDU #37

Sample Id:	**C-26**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-026	Date Collected:	07.13.2020 10:32		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.2020 22:08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.22.2020 22:08	
4-Bromofluorobenzene	460-00-4	101	%	70-130	07.22.2020 22:08	

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EBDU #37

Sample Id:	**C-27**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-027	Date Collected:	07.13.2020 10:36		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1210**	4.99	mg/kg	07.21.2020 03:21		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-130	07.15.2020 15:00	
o-Terphenyl	84-15-1	90	%	70-130	07.15.2020 15:00	

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EBDU #37

Sample Id:	**C-27**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-027	Date Collected:	07.13.2020 10:36		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
Toluene	108-88-3	**0.00482**	0.00200	mg/kg	07.22.2020 22:28		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.2020 22:28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
Total BTEX		**0.00482**	0.00200	mg/kg	07.22.2020 22:28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	107	%	70-130	07.22.2020 22:28	
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.22.2020 22:28	

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EBDU #37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-028	Date Collected:	07.13.2020 10:40		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**8280**	49.7	mg/kg	07.21.2020 03:27		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 15:22	
o-Terphenyl	84-15-1	94	%	70-130	07.15.2020 15:22	

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EBDU #37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-028	Date Collected:	07.13.2020 10:40		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.2020 22:49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	07.22.2020 22:49	
4-Bromofluorobenzene	460-00-4	108	%	70-130	07.22.2020 22:49	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-29**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-029	Date Collected:	07.13.2020 10:44		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**197**	5.03	mg/kg	07.16.2020 18:23		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 15:44	
o-Terphenyl	84-15-1	85	%	70-130	07.15.2020 15:44	

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EBDU #37

Sample Id:	**C-29**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-029	Date Collected:	07.13.2020 10:44		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
Toluene	108-88-3	**0.00906**	0.00199	mg/kg	07.22.2020 23:09		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.2020 23:09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
Total BTEX		**0.00906**	0.00199	mg/kg	07.22.2020 23:09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	113	%	70-130	07.22.2020 23:09	
1,4-Difluorobenzene	540-36-3	110	%	70-130	07.22.2020 23:09	

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EBDU #37

Sample Id:	**C-30**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-030	Date Collected:	07.13.2020 10:48		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**264**	4.96	mg/kg	07.16.2020 18:04	X	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-130	07.15.2020 16:06	
o-Terphenyl	84-15-1	84	%	70-130	07.15.2020 16:06	

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EBDU #37

Sample Id:	**C-30**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-030	Date Collected:	07.13.2020 10:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
Toluene	108-88-3	**0.00556**	0.00198	mg/kg	07.22.2020 23:30		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	07.22.2020 23:30	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
Total BTEX		**0.00556**	0.00198	mg/kg	07.22.2020 23:30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.22.2020 23:30	
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.22.2020 23:30	

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EBDU #37

Sample Id:	**C-31**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-031	Date Collected:	07.13.2020 10:52		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**42.1**	4.99	mg/kg	07.16.2020 18:29		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	07.15.2020 16:27	
o-Terphenyl	84-15-1	84	%	70-130	07.15.2020 16:27	

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EBDU #37

Sample Id:	**C-31**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-031	Date Collected:	07.13.2020 10:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 23:50	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.2020 23:50	UX	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 23:50	UXF	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 23:50	UX	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 23:50	UX	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 23:50	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.2020 23:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.22.2020 23:50	
1,4-Difluorobenzene	540-36-3	106	%	70-130	07.22.2020 23:50	

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EBDU #37

Sample Id:	**C-32**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-032	Date Collected:	07.13.2020 10:56		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**867**	4.97	mg/kg	07.16.2020 18:35		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 16:49	
o-Terphenyl	84-15-1	86	%	70-130	07.15.2020 16:49	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-32**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-032	Date Collected:	07.13.2020 10:56		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
Toluene	108-88-3	**0.00325**	0.00199	mg/kg	07.23.2020 00:11		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 00:11	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
Total BTEX		**0.00325**	0.00199	mg/kg	07.23.2020 00:11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	07.23.2020 00:11	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.23.2020 00:11	

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EBDU #37

Sample Id:	**C-33**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-033	Date Collected:	07.13.2020 11:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**553**	4.99	mg/kg	07.16.2020 18:41		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-130	07.15.2020 17:33	
o-Terphenyl	84-15-1	88	%	70-130	07.15.2020 17:33	

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EBDU #37

Sample Id:	**C-33**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-033	Date Collected:	07.13.2020 11:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
Toluene	108-88-3	**0.00712**	0.00199	mg/kg	07.23.2020 00:31		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 00:31	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
Total BTEX		**0.00712**	0.00199	mg/kg	07.23.2020 00:31		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	07.23.2020 00:31	
1,4-Difluorobenzene	540-36-3	107	%	70-130	07.23.2020 00:31	

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EBDU #37

Sample Id:	**C-34**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-034	Date Collected:	07.13.2020 11:05		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**242**	5.00	mg/kg	07.16.2020 18:59		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 17:55	
o-Terphenyl	84-15-1	88	%	70-130	07.15.2020 17:55	

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EBDU #37

Sample Id:	**C-34**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-034	Date Collected:	07.13.2020 11:05		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
Toluene	108-88-3	**0.00781**	0.00199	mg/kg	07.23.2020 00:52		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 00:52	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
Total BTEX		**0.00781**	0.00199	mg/kg	07.23.2020 00:52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	07.23.2020 00:52	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.23.2020 00:52	

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EBDU #37

Sample Id:	**C-35**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-035	Date Collected:	07.13.2020 11:01		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.23**	5.03	mg/kg	07.16.2020 19:06		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-130	07.15.2020 18:17	
o-Terphenyl	84-15-1	93	%	70-130	07.15.2020 18:17	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-35**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-035	Date Collected:	07.13.2020 11:01		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
Toluene	108-88-3	**0.00876**	0.00198	mg/kg	07.23.2020 02:14		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.23.2020 02:14	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
Total BTEX		**0.00876**	0.00198	mg/kg	07.23.2020 02:14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.23.2020 02:14	
4-Bromofluorobenzene	460-00-4	96	%	70-130	07.23.2020 02:14	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-36**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-036	Date Collected:	07.13.2020 10:52		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**64.4**	5.05	mg/kg	07.16.2020 19:12		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	07.15.2020 18:38	
o-Terphenyl	84-15-1	89	%	70-130	07.15.2020 18:38	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-36**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-036	Date Collected:	07.13.2020 10:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
Toluene	108-88-3	**0.00478**	0.00200	mg/kg	07.23.2020 02:34		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.23.2020 02:34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
Total BTEX		**0.00478**	0.00200	mg/kg	07.23.2020 02:34		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	07.23.2020 02:34	
1,4-Difluorobenzene	540-36-3	107	%	70-130	07.23.2020 02:34	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-37**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-037	Date Collected:	07.13.2020 10:52		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**14.6**	4.99	mg/kg	07.16.2020 19:30	X	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	07.15.2020 19:00	
o-Terphenyl	84-15-1	86	%	70-130	07.15.2020 19:00	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-37**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-037	Date Collected:	07.13.2020 10:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
Toluene	108-88-3	**0.00502**	0.00200	mg/kg	07.23.2020 02:55		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.23.2020 02:55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
Total BTEX		**0.00502**	0.00200	mg/kg	07.23.2020 02:55		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	119	%	70-130	07.23.2020 02:55	
1,4-Difluorobenzene	540-36-3	106	%	70-130	07.23.2020 02:55	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-38**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-038	Date Collected:	07.13.2020 10:48		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**28.7**	5.04	mg/kg	07.16.2020 19:49		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 19:22	
o-Terphenyl	84-15-1	93	%	70-130	07.15.2020 19:22	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-38**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-038	Date Collected:	07.13.2020 10:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
Toluene	108-88-3	**0.00857**	0.00199	mg/kg	07.23.2020 03:15		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 03:15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
Total BTEX		**0.00857**	0.00199	mg/kg	07.23.2020 03:15		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.23.2020 03:15	
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.23.2020 03:15	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131895 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707476-1-BLK — LCS Sample Id: 7707476-1-BKS — LCSD Sample Id: 7707476-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	260	104	261	104	90-110	0	20	mg/kg	07.16.2020 14:29	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131896 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707518-1-BLK — LCS Sample Id: 7707518-1-BKS — LCSD Sample Id: 7707518-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	263	105	263	105	90-110	0	20	mg/kg	07.16.2020 17:52	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3132156 — Matrix: Solid — Date Prep: 07.20.2020
MB Sample Id: 7707611-1-BLK — LCS Sample Id: 7707611-1-BKS — LCSD Sample Id: 7707611-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	232	93	238	95	90-110	3	20	mg/kg	07.21.2020 00:55	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131895 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667048-075 — MS Sample Id: 667048-075 S — MSD Sample Id: 667048-075 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	73.9	249	364	117	345	109	90-110	5	20	mg/kg	07.16.2020 14:47	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131895 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667048-085 — MS Sample Id: 667048-085 S — MSD Sample Id: 667048-085 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	424	250	703	112	702	111	90-110	0	20	mg/kg	07.16.2020 16:14	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131896 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667044-030 — MS Sample Id: 667044-030 S — MSD Sample Id: 667044-030 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	264	248	544	113	524	105	90-110	4	20	mg/kg	07.16.2020 18:10	X

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131896 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667044-037 — MS Sample Id: 667044-037 S — MSD Sample Id: 667044-037 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	14.6	250	292	111	281	107	90-110	4	20	mg/kg	07.16.2020 19:36	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3132156 — Matrix: Soil — Date Prep: 07.20.2020
Parent Sample Id: 667044-010 — MS Sample Id: 667044-010 S — MSD Sample Id: 667044-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2190	1240	3340	93	3510	106	90-110	5	20	mg/kg	07.21.2020 01:11	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3132156 — Matrix: Soil — Date Prep: 07.20.2020
Parent Sample Id: 667044-019 — MS Sample Id: 667044-019 S — MSD Sample Id: 667044-019 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	60.6	249	295	94	315	102	90-110	7	20	mg/kg	07.21.2020 02:24	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131823 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707429-1-BLK — LCS Sample Id: 7707429-1-BKS — LCSD Sample Id: 7707429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1100	110	1100	110	70-130	0	20	mg/kg	07.15.2020 12:07	
Diesel Range Organics (DRO)	<50.0	1000	1090	109	1110	111	70-130	2	20	mg/kg	07.15.2020 12:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		106		109		70-130	%	07.15.2020 12:07
o-Terphenyl	113		111		113		70-130	%	07.15.2020 12:07

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131827 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707430-1-BLK — LCS Sample Id: 7707430-1-BKS — LCSD Sample Id: 7707430-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	958	96	888	89	70-130	8	20	mg/kg	07.15.2020 12:07	
Diesel Range Organics (DRO)	<50.0	1000	1010	101	904	90	70-130	11	20	mg/kg	07.15.2020 12:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	87		97		89		70-130	%	07.15.2020 12:07
o-Terphenyl	96		105		95		70-130	%	07.15.2020 12:07

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131955 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707520-1-BLK — LCS Sample Id: 7707520-1-BKS — LCSD Sample Id: 7707520-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	885	89	939	94	70-130	6	20	mg/kg	07.16.2020 11:54	
Diesel Range Organics (DRO)	<50.0	1000	981	98	1000	100	70-130	2	20	mg/kg	07.16.2020 11:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		99		102		70-130	%	07.16.2020 11:54
o-Terphenyl	111		100		105		70-130	%	07.16.2020 11:54

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131823 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707429-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.15.2020 11:46	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131827 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707430-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.15.2020 11:46	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131955 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707520-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.16.2020 11:33	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131823 — Matrix: Soil — Date Prep: 07.15.2020
Parent Sample Id: 667044-003 — MS Sample Id: 667044-003 S — MSD Sample Id: 667044-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	959	96	862	86	70-130	11	20	mg/kg	07.15.2020 13:12	
Diesel Range Organics (DRO)	<49.9	997	926	93	856	86	70-130	8	20	mg/kg	07.15.2020 13:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		85		70-130	%	07.15.2020 13:12
o-Terphenyl	92		85		70-130	%	07.15.2020 13:12

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131827 — Matrix: Soil — Date Prep: 07.15.2020
Parent Sample Id: 667044-023 — MS Sample Id: 667044-023 S — MSD Sample Id: 667044-023 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	911	91	884	89	70-130	3	20	mg/kg	07.15.2020 13:12	
Diesel Range Organics (DRO)	<49.9	997	948	95	943	95	70-130	1	20	mg/kg	07.15.2020 13:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		91		70-130	%	07.15.2020 13:12
o-Terphenyl	95		91		70-130	%	07.15.2020 13:12

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131955 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667184-001 — MS Sample Id: 667184-001 S — MSD Sample Id: 667184-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	959	96	949	95	70-130	1	20	mg/kg	07.16.2020 13:00	
Diesel Range Organics (DRO)	<49.9	997	1050	105	1040	104	70-130	1	20	mg/kg	07.16.2020 13:00	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		104		70-130	%	07.16.2020 13:00
o-Terphenyl	103		101		70-130	%	07.16.2020 13:00

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132080 — Matrix: Solid — Date Prep: 07.17.2020
MB Sample Id: 7707661-1-BLK — LCS Sample Id: 7707661-1-BKS — LCSD Sample Id: 7707661-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0911	91	0.0799	80	70-130	13	35	mg/kg	07.18.2020 10:00	
Toluene	<0.00200	0.100	0.0962	96	0.0848	85	70-130	13	35	mg/kg	07.18.2020 10:00	
Ethylbenzene	<0.00200	0.100	0.0998	100	0.0861	86	70-130	15	35	mg/kg	07.18.2020 10:00	
m,p-Xylenes	<0.00400	0.200	0.194	97	0.167	84	70-130	15	35	mg/kg	07.18.2020 10:00	
o-Xylene	<0.00200	0.100	0.0984	98	0.0852	85	70-130	14	35	mg/kg	07.18.2020 10:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		95		94		70-130	%	07.18.2020 10:00
4-Bromofluorobenzene	108		103		98		70-130	%	07.18.2020 10:00

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132276 — Matrix: Solid — Date Prep: 07.21.2020
MB Sample Id: 7707803-1-BLK — LCS Sample Id: 7707803-1-BKS — LCSD Sample Id: 7707803-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.107	107	0.106	106	70-130	1	35	mg/kg	07.21.2020 20:39	
Toluene	<0.00200	0.100	0.102	102	0.106	106	70-130	4	35	mg/kg	07.21.2020 20:39	
Ethylbenzene	<0.00200	0.100	0.0995	100	0.104	104	70-130	4	35	mg/kg	07.21.2020 20:39	
m,p-Xylenes	<0.00400	0.200	0.193	97	0.205	103	70-130	6	35	mg/kg	07.21.2020 20:39	
o-Xylene	<0.00200	0.100	0.0934	93	0.0998	100	70-130	7	35	mg/kg	07.21.2020 20:39	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		97		95		70-130	%	07.21.2020 20:39
4-Bromofluorobenzene	109		95		102		70-130	%	07.21.2020 20:39

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132394 — Matrix: Solid — Date Prep: 07.22.2020
MB Sample Id: 7707874-1-BLK — LCS Sample Id: 7707874-1-BKS — LCSD Sample Id: 7707874-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0974	97	0.0961	96	70-130	1	35	mg/kg	07.22.2020 07:14	
Toluene	<0.00200	0.100	0.108	108	0.106	106	70-130	2	35	mg/kg	07.22.2020 07:14	
Ethylbenzene	<0.00200	0.100	0.110	110	0.107	107	70-130	3	35	mg/kg	07.22.2020 07:14	
m,p-Xylenes	<0.00400	0.200	0.222	111	0.216	108	70-130	3	35	mg/kg	07.22.2020 07:14	
o-Xylene	<0.00200	0.100	0.109	109	0.107	107	70-130	2	35	mg/kg	07.22.2020 07:14	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		92		93		70-130	%	07.22.2020 07:14
4-Bromofluorobenzene	115		115		114		70-130	%	07.22.2020 07:14

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132400 — Matrix: Solid — Date Prep: 07.22.2020
MB Sample Id: 7707878-1-BLK — LCS Sample Id: 7707878-1-BKS — LCSD Sample Id: 7707878-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.119	119	0.109	109	70-130	9	35	mg/kg	07.22.2020 19:44	
Toluene	<0.00200	0.100	0.0981	98	0.0973	97	70-130	1	35	mg/kg	07.22.2020 19:44	
Ethylbenzene	<0.00200	0.100	0.0922	92	0.0927	93	70-130	1	35	mg/kg	07.22.2020 19:44	
m,p-Xylenes	<0.00400	0.200	0.174	87	0.178	89	70-130	2	35	mg/kg	07.22.2020 19:44	
o-Xylene	<0.00200	0.100	0.0859	86	0.0877	88	70-130	2	35	mg/kg	07.22.2020 19:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		108		102		70-130	%	07.22.2020 19:44
4-Bromofluorobenzene	89		93		96		70-130	%	07.22.2020 19:44

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132080 — Matrix: Soil — Date Prep: 07.17.2020
Parent Sample Id: 667044-001 — MS Sample Id: 667044-001 S — MSD Sample Id: 667044-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0480	48	0.0513	52	70-130	7	35	mg/kg	07.18.2020 01:32	X
Toluene	<0.00200	0.100	0.0475	48	0.0550	55	70-130	15	35	mg/kg	07.18.2020 01:32	X
Ethylbenzene	<0.00200	0.100	0.0392	39	0.0515	52	70-130	27	35	mg/kg	07.18.2020 01:32	X
m,p-Xylenes	<0.00400	0.200	0.0735	37	0.0983	49	70-130	29	35	mg/kg	07.18.2020 01:32	X
o-Xylene	<0.00200	0.100	0.0385	39	0.0509	51	70-130	28	35	mg/kg	07.18.2020 01:32	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	116		110		70-130	%	07.18.2020 01:32
4-Bromofluorobenzene	101		101		70-130	%	07.18.2020 01:32

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132276 — Matrix: Soil — Date Prep: 07.21.2020
Parent Sample Id: 667748-001 — MS Sample Id: 667748-001 S — MSD Sample Id: 667748-001 S

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0779	78	0.0737	74	70-130	6	35	mg/kg	07.21.2020 21:20	
Toluene	<0.00200	0.100	0.0837	84	0.0843	84	70-130	1	35	mg/kg	07.21.2020 21:20	
Ethylbenzene	<0.00200	0.100	0.0828	83	0.0848	85	70-130	2	35	mg/kg	07.21.2020 21:20	
m,p-Xylenes	<0.00400	0.200	0.165	83	0.171	86	70-130	4	35	mg/kg	07.21.2020 21:20	
o-Xylene	<0.00200	0.100	0.0812	81	0.0832	83	70-130	2	35	mg/kg	07.21.2020 21:20	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	94		90		70-130	%	07.21.2020 21:20
4-Bromofluorobenzene	104		105		70-130	%	07.21.2020 21:20

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132394 — Matrix: Soil — Date Prep: 07.22.2020
Parent Sample Id: 667044-019 — MS Sample Id: 667044-019 S — MSD Sample Id: 667044-019 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0750	75	0.0767	77	70-130	2	35	mg/kg	07.22.2020 07:55	
Toluene	0.00557	0.100	0.0878	82	0.0875	82	70-130	0	35	mg/kg	07.22.2020 07:55	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.0827	83	70-130	0	35	mg/kg	07.22.2020 07:55	
m,p-Xylenes	<0.00400	0.200	0.163	82	0.162	81	70-130	1	35	mg/kg	07.22.2020 07:55	
o-Xylene	<0.00200	0.100	0.0781	78	0.0782	78	70-130	0	35	mg/kg	07.22.2020 07:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		96		70-130	%	07.22.2020 07:55
4-Bromofluorobenzene	119		117		70-130	%	07.22.2020 07:55

MS/MSD Percent Recovery — [D] = 100*(C-A) / B
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery — [D] = 100 * (C) / [B]
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3132400 Matrix: Soil Date Prep: 07.22.2020
Parent Sample Id: 667044-031 MS Sample Id: 667044-031 S MSD Sample Id: 667044-031 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0959	96	0.0764	77	70-130	23	35	mg/kg	07.22.2020 20:25	
Toluene	<0.00199	0.0996	0.0793	80	0.0584	59	70-130	30	35	mg/kg	07.22.2020 20:25	X
Ethylbenzene	<0.00199	0.0996	0.0693	70	0.0484	49	70-130	36	35	mg/kg	07.22.2020 20:25	XF
m,p-Xylenes	<0.00398	0.199	0.132	66	0.0944	48	70-130	33	35	mg/kg	07.22.2020 20:25	X
o-Xylene	<0.00199	0.0996	0.0653	66	0.0475	48	70-130	32	35	mg/kg	07.22.2020 20:25	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		106		70-130	%	07.22.2020 20:25
4-Bromofluorobenzene	93		100		70-130	%	07.22.2020 20:25

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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Received by OCD: 6/1/2026 3:49:01 PM

Released to Imaging: 6/1/2026 4:16:59 PM

Final 1.000

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№1196

LAQ7044

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 7/13/20 PAGE 1 OF 3

PO#: _____ LAB WORK ORDER#: _____

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ+DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☒ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	OIL - MOD 8015 ☒	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐	HOLDPAH ☐	8081 PESTICIDES ☐	8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐	TCLP VOC ☐	TCLP - PEST ☐	HERB ☐	Semi-VOC ☐	TOTAL METALS (RCRA) ☐	OTHER LIST ☐	LEAD - TOTAL ☐	D.W. 200.8 ☐	TCLP ☐	RCI ☐	TOX ☐	FLASHPOINT ☐	TDS ☐	TSS ☐	% MOISTURE ☐	pH ☐	CYANIDE ☐	HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐	PECHLORATE ☐	CHLORIDES ☒	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
C-1		7/13/20	1045	S	1				X		X	X	X	X	X																										X			
C-2			1035																																									Bill Direct to Apache
C-3			1030																																								
C-4			1027																																								
C-5			1023																																								
C-6			1020																																								
C-7			1015																																								
C-8			1010																																								
C-9			1005																																								
C-10			1000																																								
C-11			958																																								
C-12			955																																								
C-13			151																																								
C-14			948																																								
C-15			945																																								

TOTAL 15

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
Frank Jones	7/13/20	[signature] 1043
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 5.3 4.9 THERM#: ID 80
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☑ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

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№1197

CHAIN-OF-CUSTODY

Work Order: 607044

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 7/13/20 PAGE 2 OF 3

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESSERVED

ANALYSES: BTEX ☒ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☒ TPH 1006 ☐ | GASOLINE MOD 8015 ☒ | DIESEL - MOD 8015 ☒ | OIL - MOD 8015 ☒ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	BTEX ☒	TRPH 418.1 ☐	TPH 1005 ☒ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	OIL - MOD 8015 ☒	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
C-16		7/13/20	948	S	1				X		X	X	X	X	X													X		
C-17			952																											Bill Direct to Apache
C-18			956																											
C-19			1010																											
C-20			1004																											
C-21			1008																											
C-22			1012																											
C-23			1018																											
C-24			1022																											
C-25			1026																											
C-26			1032																											
C-27			1036																											
C-28			1040																											
C-29			1044																											
C-30			1048																											

TOTAL 15

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
Jaime Jon	7/13/20	Bill Rag
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 5.3/4.9 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Released to Imaging: 6/1/2026 4:16:59 PM
Final 1.000
Page 98 of 100

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№ 1198

LD07044

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 7/13/20 PAGE 3 OF 3

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: FBDU #37

LAI PROJECT #: 19-01126-44 COLLECTOR: TS + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESSERVED

ANALYSES: BTEX ☒ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☒ TPH 1006 ☐ | GASOLINE MOD 8015 ☒ | DIESEL - MOD 8015 ☒ | OIL - MOD 8015 ☒ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	BTEX ☒ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☒ TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	OIL - MOD 8015 ☒	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
C-31		7/13/20	1052	S	1				X		X		X	X	X													X		
C-32			1056																											Bill Direct
C-33			1100																											to Apache
C-34			1105																											
C-35			1101																											
C-36			1052																											
C-37			1052																											
C-38			1049																											

TOTAL 8

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
Jaat Jon	7/13/20	
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 5.3 4.9 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☑ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Released to Imaging: 6/1/2026 4:16:59 PM
Final 1.000
Page 99 of 100

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.13.2020 04.43.00 PM

Work Order #: 667044

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.9	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	BTEX was in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**N/A**	
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 07.14.2020
Brianna Teel

Checklist reviewed by: Holly Taylor Date: 07.16.2020
Holly Taylor

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Certificate of Analysis Summary 668318

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 07.28.2020 08:45
Report Date: 07.29.2020 15:48
Project Manager: Holly Taylor

Analysis Requested							
	Lab Id:	668318-001					
	Field Id:	C-2					
	Depth:						
	Matrix:	SOIL					
	Sampled:	07.27.2020 14:15					
Chloride by EPA 300	***Extracted:***	07.29.2020 08:40					
	Analyzed:	07.29.2020 09:58					
	Units/RL:	mg/kg	RL				
Chloride		86.5	5.04				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Analytical Report 668318

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU #37

19-0112-49

07.29.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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07.29.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **668318**
EBDU #37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 668318. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 668318 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

John Builes
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 668318

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-2	S	07.27.2020 14:15		668318-001

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU #37

Project ID: *19-0112-49*
Work Order Number(s): *668318*

Report Date: *07.29.2020*
Date Received: *07.28.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 668318

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-2**	Matrix:	Soil	Date Received:	07.28.2020 08:45
Lab Sample Id:	668318-001	Date Collected:	07.27.2020 14:15		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.29.2020 08:40	Basis:	Wet Weight
Seq Number:	3132893				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**86.5**	5.04	mg/kg	07.29.2020 09:58		1

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Received by OCD: 6/1/2026 3:49:01 PM

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QC Summary 668318

Larson and Associates, Inc.

EBDU #37

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3132893 Matrix: Solid Date Prep: 07.29.2020
MB Sample Id: 7708262-1-BLK LCS Sample Id: 7708262-1-BKS LCSD Sample Id: 7708262-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	236	94	236	94	90-110	0	20	mg/kg	07.29.2020 09:45	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3132893 Matrix: Soil Date Prep: 07.29.2020
Parent Sample Id: 668222-009 MS Sample Id: 668222-009 S MSD Sample Id: 668222-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1000	253	1210	83	1210	83	90-110	0	20	mg/kg	07.29.2020 11:30	X

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3132893 Matrix: Soil Date Prep: 07.29.2020
Parent Sample Id: 668318-001 MS Sample Id: 668318-001 S MSD Sample Id: 668318-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	86.5	252	334	98	330	97	90-110	1	20	mg/kg	07.29.2020 10:04	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Released to Imaging: 6/1/2026 4:16:59 PM

EXHIBIT A-1
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№ 1257

1608318

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 7/28/2020 PAGE 1 OF 1

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: DS

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
C-2		7/27/20	14:15	S	1				X	X	X	

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ | TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ | PAH 8270 ☐ | HOLDPAH ☐ | 8081 PESTICIDES ☐ | 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ | TCLP VOC ☐ | TCLP - PEST ☐ | HERB ☐ | Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ | OTHER LIST ☐ | LEAD - TOTAL ☐ | D.W. 200.8 ☐ | TCLP ☐ | RCI ☐ | TOX ☐ | FLASHPOINT ☐ | TDS ☐ | TSS ☐ | % MOISTURE ☐ | pH ☐ | HEXAVALENT CHROMIUM ☐ | CYANIDE ☐ | EXPLOSIVES ☐ | PECHLORATE ☐ | CHLORIDES ☐ | ANIONS ☐ | ALKALINITY ☐

TOTAL

RELINQUISHED BY:(Signature) DATE/TIME 7/28/20 8:45 RECEIVED BY: (Signature) BUSW

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☐
1 DAY ☒ Rush!
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 27.5/27.1 THERM#: BUS
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Released to Imaging: 6/1/2026 4:16:59 PM
Final 1.000
Page 9 of 10

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.28.2020 08.45.00 AM

Work Order #: 668318

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	27.1
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**No**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 07.28.2020
Brianna Teel

Checklist reviewed by: Holly Taylor Date: 07.28.2020
Holly Taylor

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 668607

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location: NM

Date Received in Lab: Thu 07.30.2020 09:20
Report Date: 07.31.2020 13:12
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668607-001		668607-002		668607-003		668607-004		668607-005		668607-006	
	Field Id:	C-3		C-4		C-5		C-6		C-7		C-8	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.29.2020 09:34		07.29.2020 09:42		07.29.2020 09:47		07.29.2020 09:51		07.29.2020 09:56		07.29.2020 16:35	
Chloride by EPA 300	***Extracted:***	07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10	
	Analyzed:	07.30.2020 12:39		07.30.2020 12:57		07.30.2020 13:03		07.30.2020 13:10		07.30.2020 13:16		07.30.2020 13:34	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		39.0 X	5.02	21.8	4.99	5.75	4.97	162	5.04	11.5	4.95	19.0	4.95

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 668607

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location: NM

Date Received in Lab: Thu 07.30.2020 09:20
Report Date: 07.31.2020 13:12
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668607-007		668607-008		668607-009		668607-010		668607-011		668607-012	
	Field Id:	C-9		C-10		C-26		C-27		C-28		C-12	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.29.2020 16:32		07.29.2020 16:30		07.29.2020 13:10		07.29.2020 12:28		07.29.2020 13:05		07.29.2020 13:23	
Chloride by EPA 300	***Extracted:***	07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10	
	Analyzed:	07.30.2020 13:40		07.30.2020 13:46		07.30.2020 13:53		07.30.2020 13:59		07.30.2020 14:05		07.30.2020 14:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		200	5.04	126	5.01	307	4.96	71.6	4.99	630	5.00	17.6	5.03

BRL - Below Reporting Limit

Holly Taylor

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 668607

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location: NM

Date Received in Lab: Thu 07.30.2020 09:20
Report Date: 07.31.2020 13:12
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668607-013		668607-014		668607-015		668607-016		668607-017		668607-018	
	Field Id:	C-17		C-32		C-21		C-22		C-23		C-24	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.29.2020 14:15		07.29.2020 14:00		07.29.2020 15:23		07.29.2020 16:45		07.29.2020 16:05		07.29.2020 16:00	
Chloride by EPA 300	***Extracted:***	07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10	
	Analyzed:	07.30.2020 14:29		07.30.2020 14:48		07.30.2020 14:54		07.30.2020 15:00		07.30.2020 15:06		07.30.2020 15:12	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		9.78	4.96	30.8	4.98	237	5.00	608	5.04	13900	99.2	37.4	4.98

BRL - Below Reporting Limit

Holly Taylor

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

eurofins | Environment Testing Xenco

Analytical Report 668607

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU 37

19-0112-49

07.31.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

eurofins | Environment Testing Xenco

07.31.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **668607**
EBDU 37
Project Address: NM

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 668607. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 668607 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-3	S	07.29.2020 09:34		668607-001
C-4	S	07.29.2020 09:42		668607-002
C-5	S	07.29.2020 09:47		668607-003
C-6	S	07.29.2020 09:51		668607-004
C-7	S	07.29.2020 09:56		668607-005
C-8	S	07.29.2020 16:35		668607-006
C-9	S	07.29.2020 16:32		668607-007
C-10	S	07.29.2020 16:30		668607-008
C-26	S	07.29.2020 13:10		668607-009
C-27	S	07.29.2020 12:28		668607-010
C-28	S	07.29.2020 13:05		668607-011
C-12	S	07.29.2020 13:23		668607-012
C-17	S	07.29.2020 14:15		668607-013
C-32	S	07.29.2020 14:00		668607-014
C-21	S	07.29.2020 15:23		668607-015
C-22	S	07.29.2020 16:45		668607-016
C-23	S	07.29.2020 16:05		668607-017
C-24	S	07.29.2020 16:00		668607-018

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU 37

Project ID: *19-0112-49*
Work Order Number(s): *668607*

Report Date: *07.31.2020*
Date Received: *07.30.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:
Batch: LBA-3133114 Chloride by EPA 300
Lab Sample ID 668607-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 668607-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-3**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-001	Date Collected:	07.29.2020 09:34		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**39.0**	5.02	mg/kg	07.30.2020 12:39	X	1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-4**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-002	Date Collected:	07.29.2020 09:42		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**21.8**	4.99	mg/kg	07.30.2020 12:57		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-5**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-003	Date Collected:	07.29.2020 09:47		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5.75**	4.97	mg/kg	07.30.2020 13:03		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-6**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-004	Date Collected:	07.29.2020 09:51		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**162**	5.04	mg/kg	07.30.2020 13:10		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-7**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-005	Date Collected:	07.29.2020 09:56		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.5**	4.95	mg/kg	07.30.2020 13:16		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-8**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-006	Date Collected:	07.29.2020 16:35		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**19.0**	4.95	mg/kg	07.30.2020 13:34		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-9**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-007	Date Collected:	07.29.2020 16:32		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**200**	5.04	mg/kg	07.30.2020 13:40		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-10**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-008	Date Collected:	07.29.2020 16:30		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**126**	5.01	mg/kg	07.30.2020 13:46		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-26**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-009	Date Collected:	07.29.2020 13:10		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**307**	4.96	mg/kg	07.30.2020 13:53		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-27**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-010	Date Collected:	07.29.2020 12:28		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**71.6**	4.99	mg/kg	07.30.2020 13:59		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-011	Date Collected:	07.29.2020 13:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**630**	5.00	mg/kg	07.30.2020 14:05		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-12**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-012	Date Collected:	07.29.2020 13:23		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**17.6**	5.03	mg/kg	07.30.2020 14:23		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-17**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-013	Date Collected:	07.29.2020 14:15		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.78**	4.96	mg/kg	07.30.2020 14:29		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-32**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-014	Date Collected:	07.29.2020 14:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**30.8**	4.98	mg/kg	07.30.2020 14:48		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-21**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-015	Date Collected:	07.29.2020 15:23		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**237**	5.00	mg/kg	07.30.2020 14:54		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-22**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-016	Date Collected:	07.29.2020 16:45		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**608**	5.04	mg/kg	07.30.2020 15:00		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-017	Date Collected:	07.29.2020 16:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13900**	99.2	mg/kg	07.30.2020 15:06		20

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-24**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-018	Date Collected:	07.29.2020 16:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**37.4**	4.98	mg/kg	07.30.2020 15:12		1

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 668607

Larson and Associates, Inc.

EBDU 37

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133114 Matrix: Solid Date Prep: 07.30.2020
MB Sample Id: 7708388-1-BLK LCS Sample Id: 7708388-1-BKS LCSD Sample Id: 7708388-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	246	98	247	99	90-110	0	20	mg/kg	07.30.2020 12:27	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133114 Matrix: Soil Date Prep: 07.30.2020
Parent Sample Id: 668607-001 MS Sample Id: 668607-001 S MSD Sample Id: 668607-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	39.0	251	319	112	315	110	90-110	1	20	mg/kg	07.30.2020 12:45	X

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133114 Matrix: Soil Date Prep: 07.30.2020
Parent Sample Id: 668607-011 MS Sample Id: 668607-011 S MSD Sample Id: 668607-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	630	250	879	100	876	98	90-110	0	20	mg/kg	07.30.2020 14:11	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

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6698607 Nº1216

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 7/29/20 PAGE 1 OF 2

PO#: _____ LAB WORK ORDER#: _____

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
C-3		7/29/20	0934	S	1					X		
C-4			0942									
C-5			0947									
C-6			0951									
C-7			0956									
C-8			1635									
C-9			1632									
C-10			1630									
C-26			1310									
C-27			1228									
C-28			1305									
C-12			1323									
C-17			1415									
C-32			1400									
C-21			1523									

ANALYSES: BTEX ☐ MTBE ☐ TPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☐ DIESEL - MOD 8015 ☐ OIL - MOD 8015 ☐ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ 8082 PCBS ☐ TBLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐

TOTAL 15

RELINQUISHED BY:(Signature) DATE/TIME 7/30/20 9:20 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 25.3 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Final 1.000
Page 28 of 30
Released to Imaging: 6/1/2026 4:16:59 PM

EXHIBIT A-1 Page 188 of 1055

Received by OCD: 6/1/2026 3:49:01 PM

Released to Imaging: 6/1/2026 4:16:59 PM

Final 1.000

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tb0806O7 №1217

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 7/29/20 PAGE 2 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ+DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
C-22		7/29/20	1645	S	1					X	X	
C-23		"	1605	"	1					"	X	
C-24		"	1600	"	1					"	X	

TOTAL 3

RELINQUISHED BY:(Signature) DATE/TIME 7/30/20 9:20 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☒
1 DAY ☑
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 25.3 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.30.2020 09.20.00 AM

Work Order #: 668607

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : ir8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	25.3
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Jessica Kramer — Date: 07.30.2020
Jessica Kramer

Checklist reviewed by: Holly Taylor — Date: 07.30.2020
Holly Taylor

Received by OCD: 6/1/2026 3:49:01 PM

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Certificate of Analysis Summary 668986

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.04.2020 08:30
Report Date: 08.04.2020 15:48
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668986-001		668986-002		668986-003		668986-004		668986-005		668986-006	
	Field Id:	BH-1 10'		BH-1 12'		BH-1 14'		BH-1 16'		BH-1 18'		BH-1 20'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.03.2020 11:40		08.03.2020 11:42		08.03.2020 11:53		08.03.2020 11:55		08.03.2020 11:57		08.03.2020 12:24	
Chloride by EPA 300	***Extracted:***	08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45	
	Analyzed:	08.04.2020 11:53		08.04.2020 11:58		08.04.2020 12:03		08.04.2020 12:08		08.04.2020 12:14		08.04.2020 12:19	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		11.6	5.00	13.3	5.00	13.4	5.03	22.9	4.95	34.4	4.99	24.7 X	5.05

BRL - Below Reporting Limit

Jessica Kramer

Released to Imaging: 6/1/2026 4:16:59 PM

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Certificate of Analysis Summary 668986

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.04.2020 08:30
Report Date: 08.04.2020 15:48
Project Manager: Holly Taylor

Analysis Requested							
	Lab Id:	668986-007		668986-008			
	Field Id:	BH-1 25'		BH-1 30'			
	Depth:						
	Matrix:	SOIL		SOIL			
	Sampled:	08.03.2020 13:30		08.03.2020 13:33			
Chloride by EPA 300	***Extracted:***	08.04.2020 10:45		08.04.2020 10:45			
	Analyzed:	08.04.2020 12:35		08.04.2020 12:40			
	Units/RL:	mg/kg	RL	mg/kg	RL		
Chloride		31.0	5.00	31.5	5.04		

BRL - Below Reporting Limit

Jessica Kramer

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Analytical Report 668986

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU 37

19-0112-49

08.04.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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08.04.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **668986**
EBDU 37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 668986. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 668986 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1 10'	S	08.03.2020 11:40		668986-001
BH-1 12'	S	08.03.2020 11:42		668986-002
BH-1 14'	S	08.03.2020 11:53		668986-003
BH-1 16'	S	08.03.2020 11:55		668986-004
BH-1 18'	S	08.03.2020 11:57		668986-005
BH-1 20'	S	08.03.2020 12:24		668986-006
BH-1 25'	S	08.03.2020 13:30		668986-007
BH-1 30'	S	08.03.2020 13:33		668986-008

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU 37

Project ID: *19-0112-49*
Work Order Number(s): *668986*

Report Date: *08.04.2020*
Date Received: *08.04.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3133486 Chloride by EPA 300

Lab Sample ID 668986-006 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 668986-001, -002, -003, -004, -005, -006, -007, -008.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 10'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-001	Date Collected:	08.03.2020 11:40		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.6**	5.00	mg/kg	08.04.2020 11:53		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 12'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-002	Date Collected:	08.03.2020 11:42		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13.3**	5.00	mg/kg	08.04.2020 11:58		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 14'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-003	Date Collected:	08.03.2020 11:53		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13.4**	5.03	mg/kg	08.04.2020 12:03		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 16'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-004	Date Collected:	08.03.2020 11:55		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**22.9**	4.95	mg/kg	08.04.2020 12:08		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 18'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-005	Date Collected:	08.03.2020 11:57		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**34.4**	4.99	mg/kg	08.04.2020 12:14		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 20'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-006	Date Collected:	08.03.2020 12:24		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.7**	5.05	mg/kg	08.04.2020 12:19	X	1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 25'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-007	Date Collected:	08.03.2020 13:30		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**31.0**	5.00	mg/kg	08.04.2020 12:35		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 30'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-008	Date Collected:	08.03.2020 13:33		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**31.5**	5.04	mg/kg	08.04.2020 12:40		1

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 668986

Larson and Associates, Inc.

EBDU 37

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133486 Matrix: Solid Date Prep: 08.04.2020
MB Sample Id: 7708666-1-BLK LCS Sample Id: 7708666-1-BKS LCSD Sample Id: 7708666-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	267	107	268	107	90-110	0	20	mg/kg	08.04.2020 10:55	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133486 Matrix: Soil Date Prep: 08.04.2020
Parent Sample Id: 668967-001 MS Sample Id: 668967-001 S MSD Sample Id: 668967-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	297	2510	3050	110	3040	109	90-110	0	20	mg/kg	08.04.2020 11:10	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133486 Matrix: Soil Date Prep: 08.04.2020
Parent Sample Id: 668986-006 MS Sample Id: 668986-006 S MSD Sample Id: 668986-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	24.7	253	312	114	312	114	90-110	0	20	mg/kg	08.04.2020 12:24	X

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

EXHIBIT A-1
Page 206 of 1055

№1322

1068986

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 8/3/20 PAGE 1 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TS + DS

TRRP report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

TIME ZONE: Time zone/State: MST

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
BH-1 10'		8-3-20	1140	S	1				X			
BH-1 12'			1142									
BH-1 14'			1153									
BH-1 16'			1155									
BH-1 18'			1157									
BH-1 20'			1224									
BH-1 25'			1330									
BH-1 30'			1333									

ANALYSES ☐: BTEX ☐ MTBE ☐ TPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☐ DIESEL - MOD 8015 ☐ OIL - MOD 8015 ☐ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ 8082 PCBS ☐ TCLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDES ☐ ANIONS ☐ ALKALINITY ☐

TOTAL 8

RELINQUISHED BY:(Signature) Trent Gun DATE/TIME 8/4/20 830 RECEIVED BY: (Signature) 8/4/20

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY
RECEIVING TEMP: 26.2 THERM#: TR8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Final 1.000
Page 17 of 18
Released to Imaging: 6/1/2026 4:16:59 PM

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 08.04.2020 08.30.00 AM

Work Order #: 668986

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 08.04.2020
Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 08.04.2020
Jessica Kramer

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Certificate of Analysis Summary 669190

Larson and Associates, Inc., Midland, TX

Project Name: Apache -EBDu #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Wed 08.05.2020 10:28
Report Date: 08.06.2020 16:24
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669190-001		669190-002		669190-003		669190-004					
	Field Id:	C-28		C-22		C-23		C-1					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	08.04.2020 12:54		08.04.2020 14:04		08.04.2020 14:12		08.04.2020 17:28					
Chloride by EPA 300	***Extracted:***	08.05.2020 11:26		08.05.2020 11:26		08.05.2020 11:26		08.05.2020 11:26					
	Analyzed:	08.05.2020 12:29		08.05.2020 12:45		08.05.2020 12:51		08.05.2020 12:57					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		415	9.98	10.7	10.0	15.8	10.1	338	10.1				
TPH By SW8015 Mod	***Extracted:***							08.06.2020 10:30					
	Analyzed:							08.06.2020 10:45					
	Units/RL:							mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)								<50.3	50.3				
Diesel Range Organics (DRO)								<50.3	50.3				
Motor Oil Range Hydrocarbons (MRO)								<50.3	50.3				
Total TPH								<50.3	50.3				

BRL - Below Reporting Limit

Holly Taylor

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Analytical Report 669190

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Apache -EBDu #37

19-0112-49

08.06.2020

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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08.06.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **669190**
Apache -EBDu #37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 669190. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 669190 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Sample Cross Reference 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-28	S	08.04.2020 12:54		669190-001
C-22	S	08.04.2020 14:04		669190-002
C-23	S	08.04.2020 14:12		669190-003
C-1	S	08.04.2020 17:28		669190-004

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: Apache -EBDu #37

Project ID: *19-0112-49*
Work Order Number(s): *669190*

Report Date: *08.06.2020*
Date Received: *08.05.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	08.05.2020 10:28
Lab Sample Id:	669190-001	Date Collected:	08.04.2020 12:54		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.05.2020 11:26	Basis:	Wet Weight
Seq Number:	3133628				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**415**	9.98	mg/kg	08.05.2020 12:29		1

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id:	**C-22**	Matrix:	Soil	Date Received:	08.05.2020 10:28
Lab Sample Id:	669190-002	Date Collected:	08.04.2020 14:04		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.05.2020 11:26	Basis:	Wet Weight
Seq Number:	3133628				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.7**	10.0	mg/kg	08.05.2020 12:45		1

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	08.05.2020 10:28
Lab Sample Id:	669190-003	Date Collected:	08.04.2020 14:12		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.05.2020 11:26	Basis:	Wet Weight
Seq Number:	3133628				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**15.8**	10.1	mg/kg	08.05.2020 12:51		1

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id:	**C-1**	Matrix:	Soil	Date Received:	08.05.2020 10:28
Lab Sample Id:	669190-004	Date Collected:	08.04.2020 17:28		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.05.2020 11:26	Basis:	Wet Weight
Seq Number:	3133628				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**338**	10.1	mg/kg	08.05.2020 12:57		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	08.06.2020 10:30	Basis:	Wet Weight
Seq Number:	3133751				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	08.06.2020 10:45	
o-Terphenyl	84-15-1	112	%	70-135	08.06.2020 10:45	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 669190

Larson and Associates, Inc.

Apache -EBDu #37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3133628 — Matrix: Solid — Date Prep: 08.05.2020
MB Sample Id: 7708772-1-BLK — LCS Sample Id: 7708772-1-BKS — LCSD Sample Id: 7708772-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	270	108	269	108	90-110	0	20	mg/kg	08.05.2020 12:17	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3133628 — Matrix: Soil — Date Prep: 08.05.2020
Parent Sample Id: 669190-001 — MS Sample Id: 669190-001 S — MSD Sample Id: 669190-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	415	200	629	107	629	107	90-110	0	20	mg/kg	08.05.2020 12:34	

Analytical Method: TPH By SW8015 Mod — Prep Method: SW8015P
Seq Number: 3133666 — Matrix: Solid — Date Prep: 08.05.2020
MB Sample Id: 7708781-1-BLK — LCS Sample Id: 7708781-1-BKS — LCSD Sample Id: 7708781-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	993	99	1000	100	70-135	1	35	mg/kg	08.05.2020 15:25	
Diesel Range Organics (DRO)	<50.0	1000	1040	104	1040	104	70-135	0	35	mg/kg	08.05.2020 15:25	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		120		120		70-135	%	08.05.2020 15:25
o-Terphenyl	104		112		110		70-135	%	08.05.2020 15:25

Analytical Method: TPH By SW8015 Mod — Prep Method: SW8015P
Seq Number: 3133751 — Matrix: Solid — Date Prep: 08.06.2020
MB Sample Id: 7708853-1-BLK — LCS Sample Id: 7708853-1-BKS — LCSD Sample Id: 7708853-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1020	102	1030	103	70-135	1	35	mg/kg	08.06.2020 10:04	
Diesel Range Organics (DRO)	<50.0	1000	1060	106	1090	109	70-135	3	35	mg/kg	08.06.2020 10:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		124		124		70-135	%	08.06.2020 10:04
o-Terphenyl	109		113		116		70-135	%	08.06.2020 10:04

Analytical Method: TPH By SW8015 Mod — Prep Method: SW8015P
Seq Number: 3133666 — Matrix: Solid — Date Prep: 08.05.2020
MB Sample Id: 7708781-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.05.2020 15:05	

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

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QC Summary 669190

Larson and Associates, Inc.

Apache -EBDu #37

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3133751 Matrix: Solid Date Prep: 08.06.2020
MB Sample Id: 7708853-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.06.2020 09:44	

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3133666 Matrix: Soil Date Prep: 08.05.2020
Parent Sample Id: 669190-001 MS Sample Id: 669190-001 S MSD Sample Id: 669190-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	939	94	915	92	70-135	3	35	mg/kg	08.05.2020 16:26	
Diesel Range Organics (DRO)	<50.0	1000	967	97	962	96	70-135	1	35	mg/kg	08.05.2020 16:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	118		116		70-135	%	08.05.2020 16:26
o-Terphenyl	106		107		70-135	%	08.05.2020 16:26

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3133751 Matrix: Soil Date Prep: 08.06.2020
Parent Sample Id: 669190-004 MS Sample Id: 669190-004 S MSD Sample Id: 669190-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.1	1000	981	98	946	95	70-135	4	35	mg/kg	08.06.2020 11:05	
Diesel Range Organics (DRO)	<50.1	1000	1020	102	985	99	70-135	3	35	mg/kg	08.06.2020 11:05	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	122		119		70-135	%	08.06.2020 11:05
o-Terphenyl	112		109		70-135	%	08.06.2020 11:05

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

EXHIBIT A-1
Page 220 of 1055

№ 1258

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 8/5/2020 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 20E09190

PROJECT LOCATION OR NAME: Apache - EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: RN

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐	TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐	HOLDPAH ☐	8081 PESTICIDES ☐	8082 PCBS ☐	8151 HERBICIDES ☐	TBLP - METALS (RCRA) ☐	TCLP - PEST ☐	TCLP VOC ☐	TOTAL METALS (RCRA) ☐	HERB ☐	Semi-VOC ☐	LEAD - TOTAL ☐	D.W. 200.8 ☐	OTHER LIST ☐	RCI ☐	TOX ☐	TCLP ☐	TDS ☐	TSS ☐	FLASHPOINT ☐	pH ☐	% MOISTURE ☐	HEXAVALENT CHROMIUM ☐	CYANIDE ☐	EXPLOSIVES ☐	PECHLORATE ☐	CHLORIDE ☐	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
C-28		8/4/20	12:54	S	1				X			X	X	X																																
C-22		"	14:04	"	"				"																																					
C-23		"	14:12	"	"				"																																					
C-1		"	17:28	"	"				"																																					
TOTAL																																														

RELINQUISHED BY:(Signature) DATE/TIME 8/5/20 10:28 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☐
1 DAY ☒ Rush!
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 3.2/3.0 THERM#: T-NM-007
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Released to Imaging: 6/1/2026 4:16:59 PM
Final 1.000
Page 13 of 15

Inter-Office Shipment

IOS Number : 68404

Date/Time:	08.06.2020	Created by:	Martha Castro	Please send report to:	Holly Taylor
Lab# From:	**Carlsbad**	Delivery Priority:		Address:	1089 N Canal Street
Lab# To:	**Midland**	Air Bill No.:		E-Mail:	holly.taylor@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
669190-004	S	C-1	08.04.2020 17:28	TX1005	TPH by Texas1005	**08.06.2020**	08.18.2020	HTA	PHCC12C28 PHCC28C3	

Inter Office Shipment or Sample Comments:

Relinquished By: Martha Castro

Date Relinquished: 08.06.2020

Received By:

Date Received:

Cooler Temperature:

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 08.05.2020 10.28.00 AM

Work Order #: 669190

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**Yes**
#6*Custody Seals Signed and dated?	**Yes**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Elizabeth McClellan Date: 08.05.2020

Checklist reviewed by: Martha Castro Date: 08.06.2020

Received by OCD: 6/1/2026 3:49:01 PM

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Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-001		669750-002		669750-003		669750-004		669750-005		669750-006	
	Field Id:	BH-2 10'		BH-2 12'		BH-2 14'		BH-2 16'		BH-2 18'		BH-2 20'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.10.2020 11:01		08.10.2020 11:03		08.10.2020 11:05		08.10.2020 11:09		08.10.2020 11:10		08.10.2020 11:11	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39	
	Analyzed:	08.11.2020 18:27		08.11.2020 18:42		08.11.2020 18:48		08.11.2020 18:53		08.11.2020 18:58		08.11.2020 19:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		79.7	4.97	18.4	5.02	10.1	4.98	10.3	4.99	9.67	4.96	9.64	4.95

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Released to Imaging: 6/1/2026 4:16:59 PM

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Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-007		669750-008		669750-009		669750-010		669750-011		669750-012	
	Field Id:	BH-2 25'		BH-4 10'		BH-4 12'		BH-4 14'		BH-4 16'		BH-4 18'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.10.2020 11:20		08.10.2020 13:05		08.10.2020 13:50		08.10.2020 13:55		08.10.2020 14:05		08.10.2020 14:10	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39	
	Analyzed:	08.11.2020 19:19		08.11.2020 19:25		08.11.2020 19:30		08.11.2020 19:35		08.11.2020 19:40		08.11.2020 19:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		11.6	4.98	24.0	5.04	12.0	5.01	10.3	4.97	15.0	5.00	12.7	5.03

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Holly Taylor

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Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-013		669750-014		669750-015		669750-016		669750-017		669750-018	
	Field Id:	BH-4 20'		BH-4 25'		BH-3 10'		BH-3 12'		BH-3 14'		BH-3 16'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.10.2020 14:40		08.10.2020 14:45		08.11.2020 09:50		08.11.2020 09:55		08.11.2020 09:59		08.11.2020 10:00	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39	
	Analyzed:	08.11.2020 20:01		08.11.2020 20:17		08.11.2020 20:23		08.11.2020 20:28		08.11.2020 20:33		08.11.2020 20:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		11.8	5.05	13.4	4.99	774	4.96	666	4.97	419	4.97	60.2	4.97

BRL - Below Reporting Limit

Holly Taylor

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-019		669750-020		669750-021		669750-022		669750-023		669750-024	
	Field Id:	BH-3 18'		BH-3 20'		BH-3 25'		BH-5 10'		BH-5 12'		BH-5 14'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.11.2020 10:15		08.11.2020 10:20		08.11.2020 10:25		08.11.2020 10:56		08.11.2020 10:58		08.11.2020 11:00	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43	
	Analyzed:	08.11.2020 20:44		08.11.2020 20:49		08.11.2020 21:21		08.11.2020 21:36		08.11.2020 21:42		08.11.2020 21:47	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		89.3	5.02	227	5.05	32.7	5.01	10.2	4.99	9.94	5.00	9.78	5.04

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

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Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-025		669750-026		669750-027		669750-028					
	Field Id:	BH-5 16'		BH-5 18'		BH-5 20'		BH-5 25'					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	08.11.2020 11:16		08.11.2020 11:18		08.11.2020 11:20		08.11.2020 11:30					
Chloride by EPA 300	***Extracted:***	08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43					
	Analyzed:	08.11.2020 21:52		08.11.2020 22:08		08.11.2020 22:13		08.11.2020 22:19					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		12.2	5.02	9.30	4.97	9.77	4.96	10.5	4.98				

BRL - Below Reporting Limit

Holly Taylor

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Analytical Report 669750

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBOU 37

19-0112-49

08.12.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

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08.12.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **669750**
EBOU 37
Project Address:

Mark Larson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 669750. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 669750 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

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Sample Cross Reference 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-2 10'	S	08.10.2020 11:01		669750-001
BH-2 12'	S	08.10.2020 11:03		669750-002
BH-2 14'	S	08.10.2020 11:05		669750-003
BH-2 16'	S	08.10.2020 11:09		669750-004
BH-2 18'	S	08.10.2020 11:10		669750-005
BH-2 20'	S	08.10.2020 11:11		669750-006
BH-2 25'	S	08.10.2020 11:20		669750-007
BH-4 10'	S	08.10.2020 13:05		669750-008
BH-4 12'	S	08.10.2020 13:50		669750-009
BH-4 14'	S	08.10.2020 13:55		669750-010
BH-4 16'	S	08.10.2020 14:05		669750-011
BH-4 18'	S	08.10.2020 14:10		669750-012
BH-4 20'	S	08.10.2020 14:40		669750-013
BH-4 25'	S	08.10.2020 14:45		669750-014
BH-3 10'	S	08.11.2020 09:50		669750-015
BH-3 12'	S	08.11.2020 09:55		669750-016
BH-3 14'	S	08.11.2020 09:59		669750-017
BH-3 16'	S	08.11.2020 10:00		669750-018
BH-3 18'	S	08.11.2020 10:15		669750-019
BH-3 20'	S	08.11.2020 10:20		669750-020
BH-3 25'	S	08.11.2020 10:25		669750-021
BH-5 10'	S	08.11.2020 10:56		669750-022
BH-5 12'	S	08.11.2020 10:58		669750-023
BH-5 14'	S	08.11.2020 11:00		669750-024
BH-5 16'	S	08.11.2020 11:16		669750-025
BH-5 18'	S	08.11.2020 11:18		669750-026
BH-5 20'	S	08.11.2020 11:20		669750-027
BH-5 25'	S	08.11.2020 11:30		669750-028

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBOU 37

Project ID: *19-0112-49*
Work Order Number(s): *669750*

Report Date: *08.12.2020*
Date Received: *08.11.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-001	Date Collected:	08.10.2020 11:01		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**79.7**	4.97	mg/kg	08.11.2020 18:27		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-002	Date Collected:	08.10.2020 11:03		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**18.4**	5.02	mg/kg	08.11.2020 18:42		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-003	Date Collected:	08.10.2020 11:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.1**	4.98	mg/kg	08.11.2020 18:48		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-004	Date Collected:	08.10.2020 11:09		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.3**	4.99	mg/kg	08.11.2020 18:53		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-005	Date Collected:	08.10.2020 11:10		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.67**	4.96	mg/kg	08.11.2020 18:58		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-006	Date Collected:	08.10.2020 11:11		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.64**	4.95	mg/kg	08.11.2020 19:14		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-007	Date Collected:	08.10.2020 11:20		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.6**	4.98	mg/kg	08.11.2020 19:19		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-008	Date Collected:	08.10.2020 13:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.0**	5.04	mg/kg	08.11.2020 19:25		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-009	Date Collected:	08.10.2020 13:50		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.0**	5.01	mg/kg	08.11.2020 19:30		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-010	Date Collected:	08.10.2020 13:55		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.3**	4.97	mg/kg	08.11.2020 19:35		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-011	Date Collected:	08.10.2020 14:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**15.0**	5.00	mg/kg	08.11.2020 19:40		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-012	Date Collected:	08.10.2020 14:10		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.7**	5.03	mg/kg	08.11.2020 19:56		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-013	Date Collected:	08.10.2020 14:40		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.8**	5.05	mg/kg	08.11.2020 20:01		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-014	Date Collected:	08.10.2020 14:45		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13.4**	4.99	mg/kg	08.11.2020 20:17		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-015	Date Collected:	08.11.2020 09:50		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**774**	4.96	mg/kg	08.11.2020 20:23		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-016	Date Collected:	08.11.2020 09:55		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**666**	4.97	mg/kg	08.11.2020 20:28		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-017	Date Collected:	08.11.2020 09:59		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**419**	4.97	mg/kg	08.11.2020 20:33		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-018	Date Collected:	08.11.2020 10:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**60.2**	4.97	mg/kg	08.11.2020 20:38		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-019	Date Collected:	08.11.2020 10:15		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**89.3**	5.02	mg/kg	08.11.2020 20:44		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-020	Date Collected:	08.11.2020 10:20		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**227**	5.05	mg/kg	08.11.2020 20:49		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-021	Date Collected:	08.11.2020 10:25		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**32.7**	5.01	mg/kg	08.11.2020 21:21		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-022	Date Collected:	08.11.2020 10:56		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.2**	4.99	mg/kg	08.11.2020 21:36		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-023	Date Collected:	08.11.2020 10:58		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.94**	5.00	mg/kg	08.11.2020 21:42		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-024	Date Collected:	08.11.2020 11:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.78**	5.04	mg/kg	08.11.2020 21:47		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-025	Date Collected:	08.11.2020 11:16		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.2**	5.02	mg/kg	08.11.2020 21:52		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-026	Date Collected:	08.11.2020 11:18		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.30**	4.97	mg/kg	08.11.2020 22:08		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-027	Date Collected:	08.11.2020 11:20		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.77**	4.96	mg/kg	08.11.2020 22:13		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-028	Date Collected:	08.11.2020 11:30		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.5**	4.98	mg/kg	08.11.2020 22:19		1

eurofins | Environment Testing Xenco

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

eurofins | Environment Testing Xenco

QC Summary 669750

Larson and Associates, Inc.

EBOU 37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134219 — Matrix: Solid — Date Prep: 08.11.2020
MB Sample Id: 7709203-1-BLK — LCS Sample Id: 7709203-1-BKS — LCSD Sample Id: 7709203-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	266	106	267	107	90-110	0	20	mg/kg	08.11.2020 18:16	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134222 — Matrix: Solid — Date Prep: 08.11.2020
MB Sample Id: 7709204-1-BLK — LCS Sample Id: 7709204-1-BKS — LCSD Sample Id: 7709204-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	266	106	265	106	90-110	0	20	mg/kg	08.11.2020 21:10	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134219 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669750-001 — MS Sample Id: 669750-001 S — MSD Sample Id: 669750-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	79.7	249	347	107	347	107	90-110	0	20	mg/kg	08.11.2020 18:32	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134219 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669750-011 — MS Sample Id: 669750-011 S — MSD Sample Id: 669750-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.0	250	288	109	289	110	90-110	0	20	mg/kg	08.11.2020 19:46	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134222 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669700-003 — MS Sample Id: 669700-003 S — MSD Sample Id: 669700-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7940	2510	10400	98	10500	102	90-110	1	20	mg/kg	08.12.2020 09:52	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134222 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669750-021 — MS Sample Id: 669750-021 S — MSD Sample Id: 669750-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.7	251	307	109	305	108	90-110	1	20	mg/kg	08.11.2020 21:26	

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

EXHIBIT A-1
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№1219

Ld69750

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 8/11/20 PAGE 1 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESSERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
BH-2 10'		8/10/20	1101	S	1						X	
BH-2 12'			1103									
BH-2 14'			1105									
BH-2 16'			1109									
BH-2 18'			1110									
BH-2 20'			1111									
BH-2 25'			1120									
BH-4 10'			1305									
BH-4 12'			1350									
BH-4 14'			1355									
BH-4 16'			1405									
BH-4 18'			1410									
BH-4 20'			1440									
BH-4 25'			1445									
BH-3 10'		8/11/20	0950									
TOTAL 15												

RELINQUISHED BY:(Signature) Trent Gum DATE/TIME 8/11/20 1554 RECEIVED BY: (Signature) 8/11/20

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 25.3/24.9 THERM#: IR8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Released to Imaging: 6/1/2026 4:16:59 PM
Final 1.000
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№ 1220

1 dec 1750

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 8/11/20 PAGE 2 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ & DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
BH-3 12'		8/11/20	0955	S	1						X	
BH-3 14'			0959									
BH-3 16'			1000									
BH-3 18'			1015									
BH-3 20'			1020									
BH-3 25'			1025									
BH-5 10'			1056									
BH-5 12'			1058									
BH-5 14'			1100									
BH-5 16'			1116									
BH-5 18'			1118									
BH-5 20'			1120									
BH-5 25'			1130									

ANALYSES ☐: BTEX · MTBE · TPH 418.1 · TPH 1005 · TPH 1006 · GASOLINE MOD 8015 · DIESEL - MOD 8015 · OIL - MOD 8015 · VOC 8260 · SVOC 8270 · PAH 8270 · HOLDPAH · 8081 PESTICIDES · 8151 HERBICIDES · 8082 PCBS · TBLP - METALS (RCRA) · TCLP VOC · TCLP - PEST · HERB · Semi-VOC · TOTAL METALS (RCRA) · OTHER LIST · LEAD - TOTAL · D.W. 200.8 · TCLP · RCI · TOX · FLASHPOINT · TDS · TSS · % MOISTURE · CYANIDE · pH · HEXAVALENT CHROMIUM · EXPLOSIVES · PECHLORATE · CHLORIDES · ANIONS · ALKALINITY

TOTAL 13

RELINQUISHED BY:(Signature) Trent Jacobs	DATE/TIME 8/11/20	RECEIVED BY: (Signature) 1554
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

LABORATORY: Xenco

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 2.3/2.4 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM
Final 1.000
Page 41 of 42
Released to Imaging: 6/1/2026 4:16:59 PM

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 08.11.2020 03.56.00 PM

Work Order #: 669750

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	24.9
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**No**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 08.11.2020
Brianna Teel

Checklist reviewed by: Holly Taylor Date: 08.12.2020
Holly Taylor

Appendix C

Photographs



Liner in Spill Area 2, facing south.



Seeding backfilled excavation, facing south.



Backfilled excavation, facing west.



Backfilled excavation, facing northeast.



Backfilled excavation, facing east.



Backfilled excavation, facing west.

Appendix D

OCD Communications

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Robert Nelson
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Tuesday, September 1, 2020 4:10:21 PM

09/01/2020

Mark,

As stated below was agreed in our phone conversation.

Bradford Billings

EMNRD/OCD

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations

From: Mark Larson <Mark@laenvironmental.com>
Sent: Tuesday, September 1, 2020 10:48 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
This email confirms our call today, September 1, 2020, for approval to complete backfilling the excavation in the swale at EBDU #37. As discussed the excavation is currently backfilled with caliche to approximately 5 feet below ground surface (bgs). NMOCD approved filling the remainder of the excavation to three (3) feet with clean caliche and to ground surface with topsoil. Since Apache is finishing backfilling the north excavation with topsoil it will fill the excavation in the swale with topsoil from 5 feet to ground surface. Notification will be submitted o NMOCD at least 7 days excluding weekends prior to installing monitoring wells. Please let me know if this is not consistent with our discussion. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.
Thank you,
Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656

Fax – 432-687-0456
mark@laenvironmental.com

From: Mark Larson
Sent: Thursday, August 13, 2020 8:26 AM
To: 'Bradford.Billings@state.nm.us' <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Soil sampling at EBDU #37 was completed on August 11, 202. The laboratory reported chloride above the OCD closure criteria of 600 milligrams per kilogram (mg/Kg) in two (2) samples: BH-3, 10 feet (774 mg/Kg) and 12 feet (666 mg/Kg). Chloride was 419 mg/Kg in the sample from 14 feet. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation and fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the boring locations. Table 4 presents the confirmation composite sample locations. Drilling and installation for two (2) monitoring wells is scheduled for Monday, August 18th.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Sent: Monday, August 10, 2020 10:51 AM
To: Mark Larson <Mark@laenvironmental.com>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

08/10/2020

Hello M. Baker (Apache) and Mr. Larson (LAI),

As OCD has been informed you are looking to proceed on the site tomorrow, the following:

OCD approves the modifications as indicated in attached email form LAI. If the circumstances occur as is possible, there would be no need for the liner, and OCD agrees. OCD appreciates the desire to generate accurate data and is please for your efforts along those lines. If field data indicates a modification please attempt to contact me on phone or email.

Thank you and please be safe and careful.

Sincerely,

Bradford Billings
EMNRD/OCD

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, August 10, 2020 8:49 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
I am following up on the email below to see if you have had a moment to review.
Thank you,
Mark

From: Mark Larson
Sent: Friday, August 7, 2020 11:45 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Apache Corporation has completed backfilling the deep excavation (Area 2) at EBUD #37 (1RP-5636) with clean caliche to approximately five (5) feet below ground surface (bgs) to allow access for a Geoprobe Model 7822DT to delineate the vertical extent of chloride in soil below the excavation at approximately 12 feet bgs. Personnel from Larson & Associates, Inc. (LAI) collected soil samples at the proposed boring location (BH-1) near the center of the excavation at 10, 12, 14, 16, 18 and 20 feet bgs, on August 3, 2020. The laboratory reported chloride at 11.6 mg/Kg (10 feet), 13.3 mg/Kg (12 feet), 13.4 mg/Kg (14 feet), 22.9 mg/Kg (16 feet), 34.4 mg/Kg (18 feet) and 24.7 mg/Kg at 20 feet bgs. Previous bottom samples from B15 collected on August 8, 2019, from 13, 15, 17, 19, 21 and 22 feet bgs, reported chloride at 720 mg/Kg, 1,840 mg/Kg, 1,950 mg/Kg, 3,800 mg/Kg, 544 mg/Kg, and 3,440 mg/Kg, respectively, and suggested possible sample cross contamination. Benzene, BTEX and TPH were the analytical method reporting limits. LAI personnel collected composite sidewall samples from the excavation to approximately 5 feet that were analyzed for benzene, BTEX and TPH. The final concentrations are below the OCD cleanup levels in Table 1 (19.15.29 NMAC).

Apache requests approval from OCD to collect additional delineation soil samples with the Geoprobe from four (4) locations (north, south, east and west) from location BH-1 at the same depths (10, 12,14,16,18 and 20 feet) and analyze the samples for chloride. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation If chloride concentrations are below the OCD remediation limit (600 mg/Kg). Apache will fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the proposed borings BH-2 through BH-5. Figure 2a presents the composite soil sample locations. Table 4 presents the confirmation composite sample locations.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

From: Mark Larson <Mark@laenvironmental.com>

Sent: Monday, December 23, 2019 1:58 PM
To: Bradford.Billings@state.nm.us
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
Subject: Re: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Dear Bradford,
This email will confirm our phone conversation on December 20, 2019 for the EBDU #37 produced water release:

- Apache will install a boring in the bottom of the excavation to delineate the vertical extent of chloride in soil. Soil samples will be collected beginning at the bottom of the excavation and every five (5) feet thereafter until chloride decreases below 600 mg/Kg or groundwater is encountered;
- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs;
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient;
- Apache will close the excavation at Area 1 according to the remediation plan dated October 29, 2019;
- Apache will close the excavation at Area 2, based on the laboratory results of samples from the boring to be placed in the bottom of the excavation, by filling the excavation to approximately 5 feet bgs with clean caliche, installing a 20 mill thickness polyethylene liner at approximately 5 feet bgs and backfilling to surface with clean topsoil;
- Seed Area 1 and Area 2 following remediation according to landowner requirements;
- Perform quarterly groundwater monitoring (5 wells) and reporting.

Your approval is this addendum remediation plan is requested. Please contact Bruce Baker with Apache or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

1RP-5636
2021
First (1st) Quarter
GROUNDWATER MONITORING REPORT
(January – March)

East Blinebry Drinkard Unit #37
Lea County, New Mexico

Latitude: N 32.47956°
Longitude: W -103.12206°

LAI Project No. 19-0112-49

April 20, 2021

Prepared for:
Apache Corporation
303 Veterans Airpark Lane
Midland, Texas 79705

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 202
Midland, Texas 79701

Mark J. Larson, P.G.
Certified Professional Geologist #10490

Daniel A. St. Germain
Staff Geologist

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Appendix B OCD Communications
Appendix C Boring Logs
Appendix D Laboratory Report

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1.0 EXECUTIVE SUMMARY

Larson & Associates, Inc. (LAI) has prepared this first quarter groundwater monitoring report on behalf of Apache Corporation (Apache) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs and Santa Fe, New Mexico. This report presents the 2021 first quarter (January – March) groundwater gauging summary and laboratory analysis of groundwater samples collected from four (4) monitor wells (TMW-1, TMW-2, TMW-3, and TMW-4) and a windmill at the East Blinebry Drinkard Unit (EBDU) #37 (Site) located in Lea County, New Mexico. The geodetic position is North 32.479569° and West -103.122061°.

The following groundwater monitoring activities occurred on March 11, 2021:

- Gauged depth to ground water in four (4) monitor wells (TMW-1 through TMW-4).
- Purged and collected groundwater samples from four (4) monitor wells (TMW-1 through TMW-4).
- Collect groundwater samples from a windmill located south from the Site.
- Analyzed groundwater samples for benzene, toluene, ethylbenzene, and xylenes (BTEX), total dissolved solids (TDS), and chloride.

The following observations are documented in this report:

- No significant changes were observed in potentiometric surface elevation, flow direction, or gradient during the monitoring period.
- Groundwater flow was from north to south at gradients between 0.0012 feet per foot (ft/ft) and 0.0019 ft/ft.
- BTEX was not reported above the analytical method reporting limits (RL) or New Mexico Water Quality Control Commission (WQCC) human health standards in groundwater samples collected on March 11, 2021.
- Chloride was reported above the WQCC domestic water quality standard of 250 milligrams per liter (mg/L) in groundwater samples collected from wells TMW-2 (293 mg/L), TMW-4 (834 mg/L), and the windmill (252 mg/L).
- TDS was reported above the WQCC domestic water quality standard of 1,000 mg/L in the groundwater sample collected from well TMW-4 (1960 mg/L).

Apache will continue quarterly monitoring of groundwater in wells TMW-1 through TMW-4 and the windmill during 2021 with laboratory analysis of groundwater samples for BTEX, TDS, and chloride. Notice will be provided to OCD in Hobbs and Santa Fe, New Mexico at least 5 working days prior to each groundwater monitoring event. OCD will be notified immediately upon receipt laboratory analysis with significant increase of analyte concentrations.

2.0 INTRODUCTION

Larson & Associates, Inc. (LAI), on behalf of Apache Corporation (Apache), has prepared this first quarter groundwater monitoring report for submittal to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs and Santa Fe, New Mexico. This report presents the first quarter laboratory analysis of groundwater samples collected from monitor wells (TMW-1, TMW-2, TMW-3, TMW-4) and a windmill at the East Blinebry Drinkard Unit (EBDU) #37 (Site) located in Lea County, New Mexico. The geodetic

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position is North 32.479569° and West -103.122061°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

2.1 Background

The spill originated from a flowline at a pipeline junction located about 720 feet east from Well #37. Produced fluids (oil and water) flowed west about 350 feet west from the release origin, and south about 450 feet before terminating in low-lying area. The volume of the release and recovered fluid are unknown. The spill is designated as a major release due to the unknown volume of the release. The spill covered an area measuring about 31,320 square feet or about 0.72 acres. The initial C-141 was submitted on July 26, 2019 and was assigned remediation permit number 1RP-5636. Appendix A presents the initial C-141.

On October 29, 2019, Apache submitted to the OCD a remediation plan titled, "1RP-5636 REMEDIATION PLAN, East Blinebry Drinkard Unit #37 Produced water Spill, Lea County, New Mexico, October 29, 2019". On December 23, 2019, OCD approved an addendum to the remediation plan based on a telephone call on December 20, 2019, with the following conditions:

- Apache will install a boring in the bottom of the excavation to delineate the vertical extent of chloride in soil. Soil samples will be collected beginning at the bottom of the excavation and every five (5) feet thereafter until chloride decreases below 600 mg/Kg or groundwater is encountered.
- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs.
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient.
- Apache will close the excavation at Area 1 according to the remediation plan dated October 29, 2019.
- Apache will close the excavation at Area 2, based on the laboratory results of samples from the boring to be placed in the bottom of the excavation, by filling the excavation to approximately 5 feet bgs with clean caliche, installing a 20-mill thickness polyethylene liner at approximately 5 feet bgs and backfilling to surface with clean topsoil.
- Seed Area 1 and Area 2 following remediation according to landowner requirement.
- Perform quarterly groundwater monitoring (5 wells) and reporting.

Appendix B presents the OCD communications.

2.2 Monitoring Well Installations

On September 29, 2019, Scarborough Drilling Inc. (SDI), under LAI supervision, installed two (2) monitoring wells (TMW-1 and TMW-2) under permits issued by the State of New Mexico Office of the State Engineer. Monitoring wells TMW-3 and TMW-4 were repositioned to avoid removing thick vegetation and/or crossing underground pipelines. Monitoring well TMW-3 was repositioned about 100 feet west from its original location. Monitoring well TMW-4 was repositioned about 30 feet east from its original location. OCD approved the relocation of the monitoring wells September 22, 2020. Appendix B presents OCD communications.

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Monitoring wells TMW-3 and TMW-4 were drilled to approximately 68.41 feet bgs and 70.09 feet bgs, respectively. Both wells were completed with two (2) inch threaded schedule 40 PVC casing and approximately twenty (20) feet of 0.01-inch factory slotted screen. The screens were positioned above and below the groundwater level observed during drilling. Graded silica sand was placed around the well screens to about two (2) feet above the screens. The remaining annulus above the screens was filled to about 1-foot bgs with bentonite chips and hydrated with potable water. The wells are secured with locking steel covers.

The monitor wells (TMW-1 through TMW-4) were surveyed by West Company, a State of New Mexico Licensed Professional Land Surveyor (LPS Number 23263) for geodetic position and elevation, including surface elevation and top of casing (TOC) elevation. Figure 2 presents the monitoring well locations. Appendix C presents the boring logs and monitoring well completion records.

3.0 DEPTH TO GROUNDWATER AND GROUNDWATER POTENTIOMETRIC SURFACE ELEVATION

On March 11, 2021, depth to groundwater was gauged in wells TMW-1 through TMW-4. Groundwater was measured at 49.41 (TMW-1), 58.0 (TMW-2), 57.59 (TMW-3), and 57.4 (TMW-4) feet below top of casing (TOC). The groundwater potentiometric surface elevation ranged from 3,366.16 feet above mean sea level (MSL) at TMW-2 (up gradient) to 3,365.16 above MSL at TMW-1 (down gradient). Groundwater flow from north to south at gradients between 0.0012 feet per foot (ft/ft) and 0.0019 ft/ft.

No significant changes in potentiometric surface elevation, flow direction, or gradient were observed on March 11, 2021. Figure 3 presents the groundwater potentiometric surface map on March 11, 2021. Table 1 presents monitor well construction and gauging summary.

4.0 GROUNDWATER SAMPLES AND ANALYSIS

On March 10, 2021 LAI personnel collected groundwater samples from monitoring wells TMW-1 through TMW-4, using the low stress or low flow method following EPA protocol (EQASOP-GW4, Revision 4, September 19, 2017) where an environmental pump is submerged near the middle of the water column and the well is pumped at a low flow rate until environmental parameters stabilize.

Groundwater samples were collected from discharge through dedicated disposable Tygon tubing. The tubing was discarded after each use and the pump was thoroughly cleaned with a solution of potable water and laboratory grade detergent (alconox) and rinsed with distilled water. The samples were transferred to labeled laboratory containers, packed in an ice chest filled with ice, and delivered under chain of custody control to Xenco Laboratories (Xenco), a National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory, located in Midland, Texas. A duplicate sample was collected from the windmill for laboratory quality assurance and quality control (QA/QC).

Xenco analyzed the samples for benzene, toluene, ethylbenzene, xylene (BTEX) according to EPA SW-846 Method SW-8260D, total dissolved solids (TDS) by Method SM 2540C, and chloride by EPA Method 300. Table 2 presents the laboratory analytical summary. Appendix B presents the laboratory report.

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4.1 Organic Analysis

Xenco reported BTEX concentrations below the laboratory analytical reporting limit (RL) and New Mexico Water Quality Control Commission (WQCC) human health standards in groundwater samples from TMW-1 through TMW-4 and windmill March 11, 2021. The results are consistent with the results from previous groundwater monitoring events.

4.2 Inorganic Analysis

Chloride concentrations remain above the WQCC domestic water quality standard (250 mg/L) in samples collected from monitoring wells TMW-2 (293 mg/L), TMW-4 (834 mg/L), and the windmill (252 mg/L). Chloride concentrations were below WQCC domestic water quality standards in monitoring wells TMW-1 (10.9 mg/L) and TMW-2 (213 mg/L), and consistent with previous monitoring events. The duplicate (QA/QC) sample (Dup-1) collected from the windmill is within 2.8 percent (259 mg/L) of the original chloride value (252 mg/L) for the windmill. No data quality exceptions were noted in Xenco case narratives. Figure 4 presents the chloride isopleth map for March 11, 2021.

TDS concentrations remain above the WQCC domestic water quality standard (1,000 mg/L) in samples collected from TMW-2 (1,000 mg/L) and TMW-4 (1,960 mg/L). TDS concentrations remain below the WQCC domestic water quality standards in monitoring wells TMW-1 (360 mg/L), TMW-3, (900 mg/L), and the windmill (745 mg/L). Figure 5 presents the TDS isopleth map for March 11, 2021.

5.0 CONCLUSIONS

The following observations are made in this report:

- The groundwater flow direction was from north to south at gradients between approximately 0.0012 and 0.0019 ft/ft.
- No significant changes were observed in potentiometric surface elevation, flow direction, or gradient during the monitoring period.
- BTEX was reported below the analytical reporting limit and WQCC human health standards in groundwater samples collected from TMW-1 through TMW-4.
- Chloride concentrations were reported above WQCC domestic water quality standard (250 mg/L) in groundwater samples collected from TMW-2 (293 mg/L), TMW-4 (834 mg/L), and the windmill (252 mg/L).
- TDS concentrations were reported above the WQCC domestic water quality standard (1,000 mg/L) in groundwater samples collected from TMW-2 (1,000 mg/L) and TMW-4 (1,960 mg/L).

- Apache will continue quarterly monitoring of groundwater in wells TMW-1 through TMW-4 and the windmill during 2021 with laboratory analysis of groundwater samples for BTEX, chloride and TDS.

Notice will be provided to OCD in Hobbs and Santa Fe, New Mexico at least 7 working days prior to each groundwater monitoring event. The OCD will be notified immediately upon receipt of laboratory analysis with significant increase of analyte concentrations.

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Tables

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Table 1
1RP-5636
Monitoring Well Completion and Gauging Summary
Apache Corportaion, EBDU #37
Lea County, New Mexico

Well Information									Groundwater Data				
Well No.	Date Drilled	Well Depth (Feet TOC)	Drilled Depth (Feet BGS)	Well Diameter (inches)	Surface Elevation (Feet AMSL)	Screen Interval (Feet BGS)	Casing Stickup (Feet)	TOC Elevation (Feet AMSL)	Date Gauged	Depth to Water (feet TOC)	Depth to Water (feet BGS)	Water Column Height (feet)	Groundwater Elevation (feet AMSL)
TMW-1	09/19/2019	74.36	71.00	2	3411.21	42.32 - 61.97	3.36	3,414.57	09/23/2019	46.18	42.82	28.18	3,368.39
									12/26/2019	48.90	45.54	26.27	3,365.67
									09/30/2020	49.31	45.95	25.05	3,365.26
									12/07/2020	49.42	46.06	24.94	3,365.15
									03/11/2021	49.41	46.05	24.95	3,365.16
TMW-2	09/19/2019	82.86	80.00	2	3421.30	47.50 - 67.50	2.86	3,424.16	09/23/2019	55.80	52.94	27.06	3,368.36
									12/26/2019	57.50	54.64	25.36	3,366.66
									09/30/2020	58.01	55.15	24.85	3,366.15
									12/07/2020	58.08	55.22	24.78	3,366.08
									03/11/2021	58.00	55.14	24.86	3,366.16
TWM-3	09/29/2020	71.29	68.41	2	3420.33	49.96 - 68.41	2.88	3,423.21	09/23/2019	--	--	--	--
									12/26/2020	--	--	--	--
									09/30/2020	57.62	54.74	13.67	3,365.59
									12/07/2020	57.68	54.80	13.61	3,365.53
									03/11/2021	57.59	54.71	13.70	3,365.62
TMW-4	09/29/2020	73.25	70.09	2	3420.03	49.96 - 69.76	3.16	3,423.19	09/23/2019	--	--	--	--
									12/26/2019	--	--	--	--
									09/30/2020	57.39	54.23	15.86	3,365.80
									12/07/2020	57.45	54.29	15.80	3,365.74
									03/11/2021	57.40	54.24	15.85	3,365.79

Notes: monitoring wells installed by Environ-Drill, Albuquerque, New Mexico with 2 inch schedule 40 PVC casing and screen
bgs: below ground surface
TOC: top of casing
AMSL: denotes elevation in feet above mean sea level

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Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

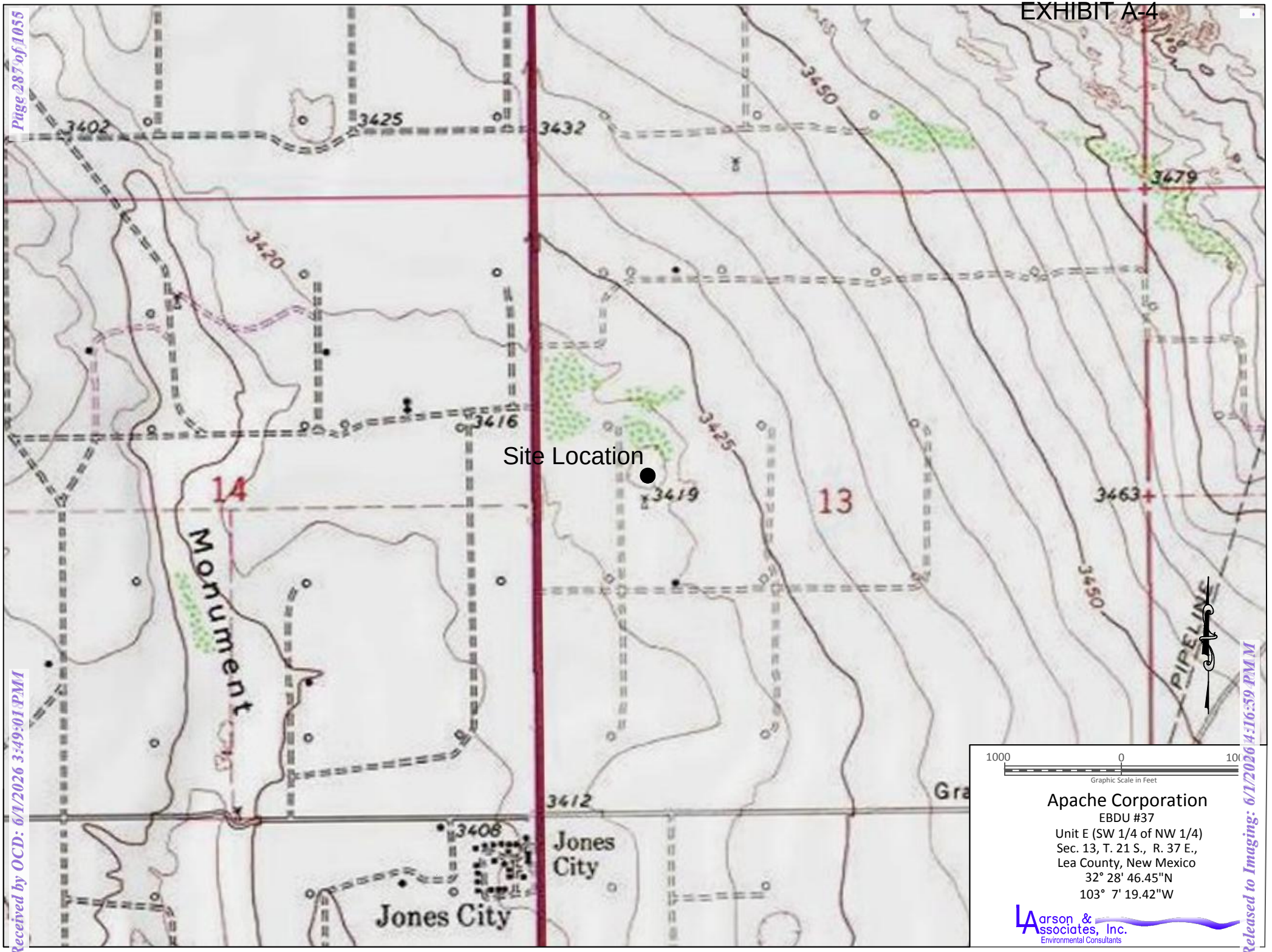
Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)	TDS (mg/L)	Depth To Water (Feet TOC)
NMWQCC Standard:		*0.005	*1	*0.7	*0.62	**250	**1,000	
Windmill	(1) 08/01/2019	<0.001	<0.001	<0.001	<0.003	232	732	--
	(2) 09/23/2019	--	--	--	--	--	--	--
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**259**	688	--
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**274**	730	--
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**287**	930	--
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**252**	745	--
TMW-1	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	37.4	400	46.18
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	21.1	390	48.9
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	22.6	390	49.31
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	13.1	383	49.42
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	10.9	360	
TMW-2	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	**338**	**1,220**	55.8
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**307**	**1,170**	57.5
	(3) 09/30/2020	<0.00200	0.00227	<0.00200	<0.00200	**314**	**1,040**	58.01
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**298**	**1,050**	58.06
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**293**	**1,000**	
TMW-3	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00322	<0.00200	0.00448	212	891	57.62
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	214	948	57.68
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	213	900	
TMW-4	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00314	<0.00200	<0.00200	**1,020**	**2,040**	57.39
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**987**	**2,300**	57.45
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**834**	**1,960**	
DUP-1 (Windmill)	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**276**	794	--
DUP-1 (Windmill)	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**278**	908	--
DUP-1 (Windmill)	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**259**	798	--

Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

Notes:
('): analysis performed by Cardinal Laboratories, Hobbs, New Mexico, by EPA SW-846 Method 8021B (BTEX) and titration methods (chloride and TDS).
([2]): analysis performed by DHL Analytical, Round Rock, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([3]): analysis performed by Xenco Laboratories, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([4]): anaylis performed by Eurofins-Xenco, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride). Units reported as ug/L in report, converted to mg/L.
< values: concentration is less than method reporting limit (RL).
*: NMWQCC Human Health Standard
**: NMWQCC Domestic Water Quality Standard
--: no data available
TOC: top of casing
All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)
Bold and highlighted denotes analyte concentration exceeds NMWQCC domestic water quality standard

Figures

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Figure 1 - Topographic Map

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Figure 2 - Aerial Map

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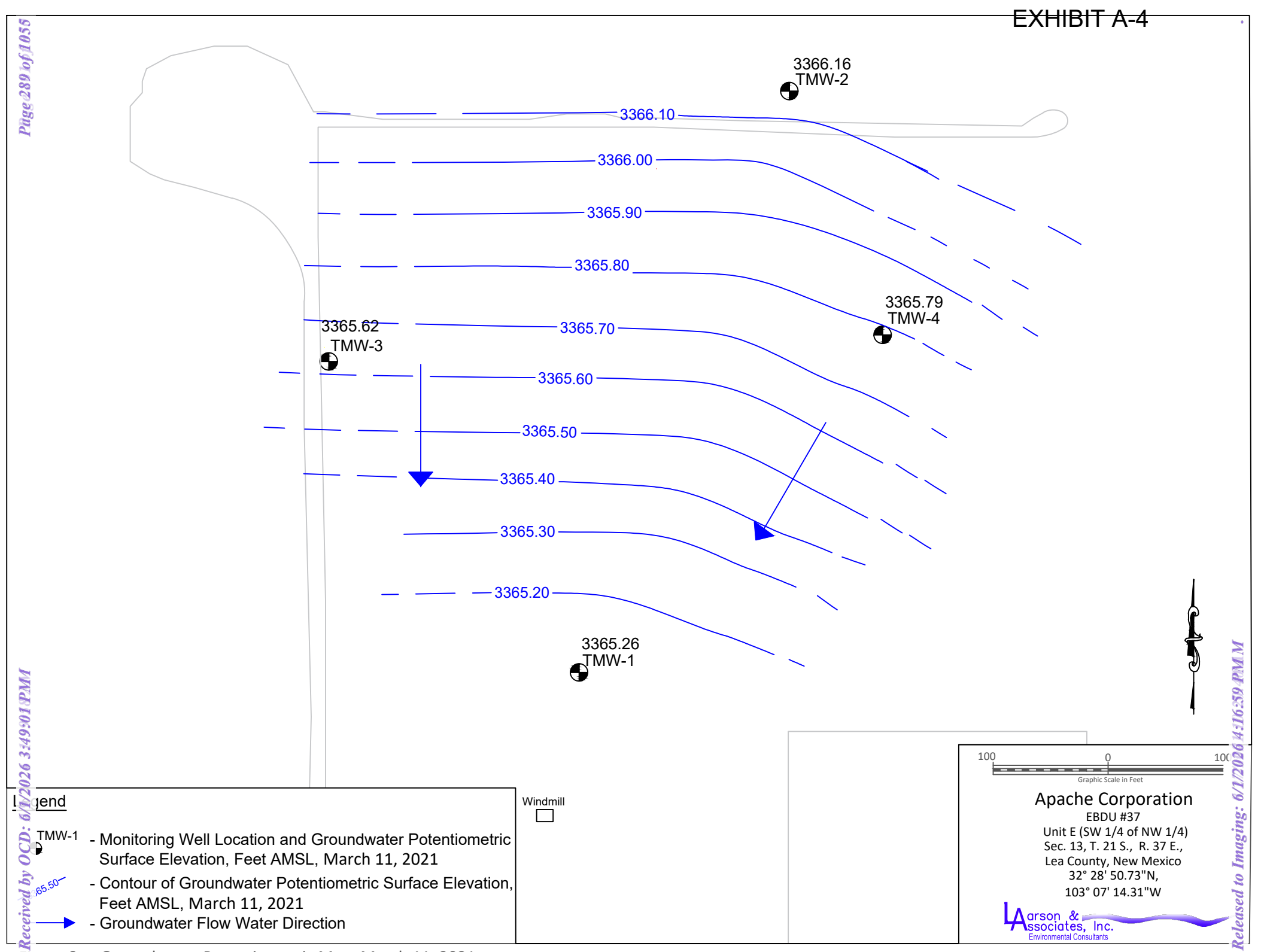
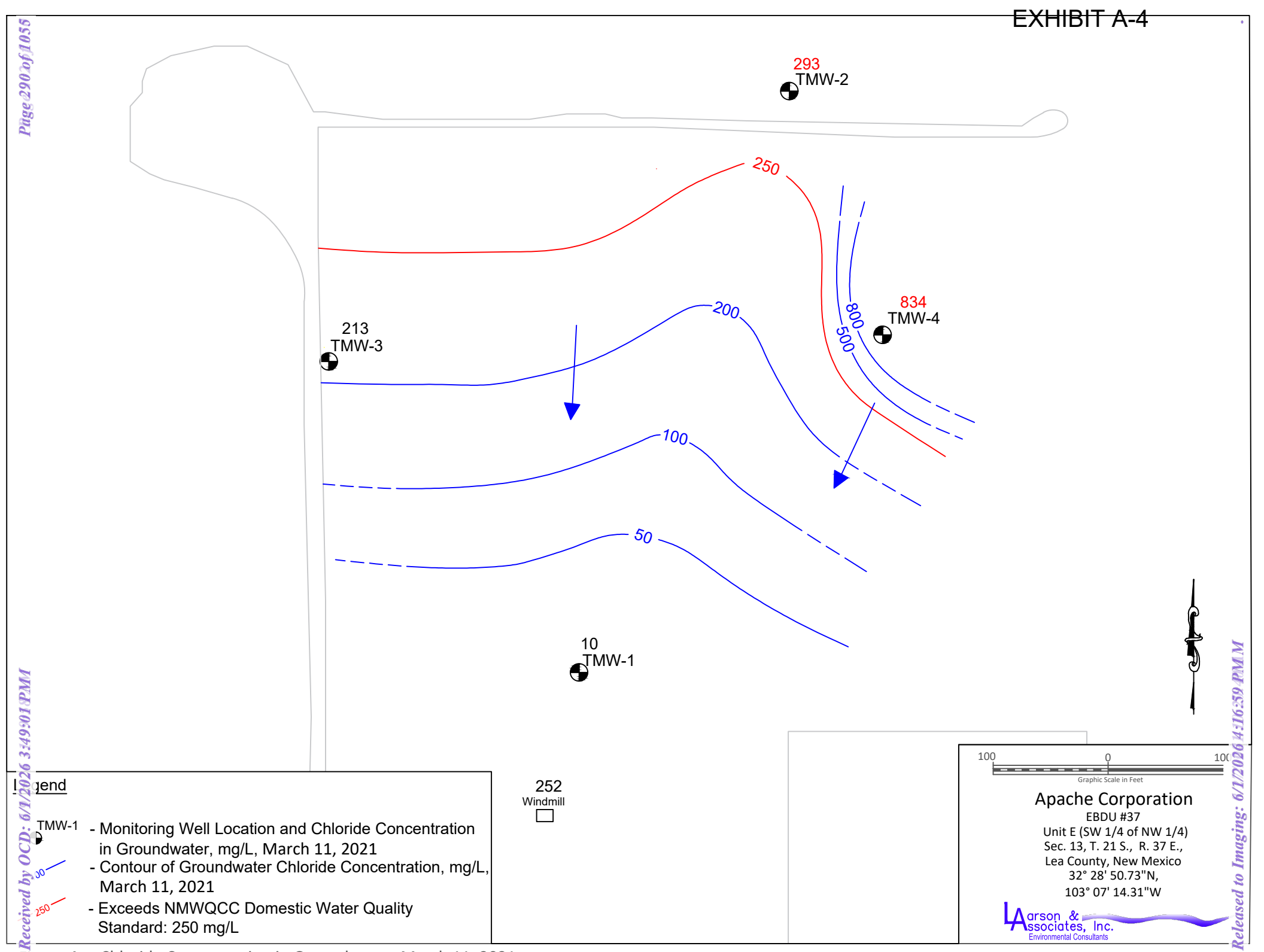


Figure 3a - Groundwater Potentiometric Map, March 11, 2021

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Legend

TMW-1 - Monitoring Well Location and Chloride Concentration in Groundwater, mg/L, March 11, 2021

- Contour of Groundwater Chloride Concentration, mg/L, March 11, 2021

250 - Exceeds NMWQCC Domestic Water Quality Standard: 250 mg/L

Figure 4a - Chloride Concentration in Groundwater, March 11, 2021

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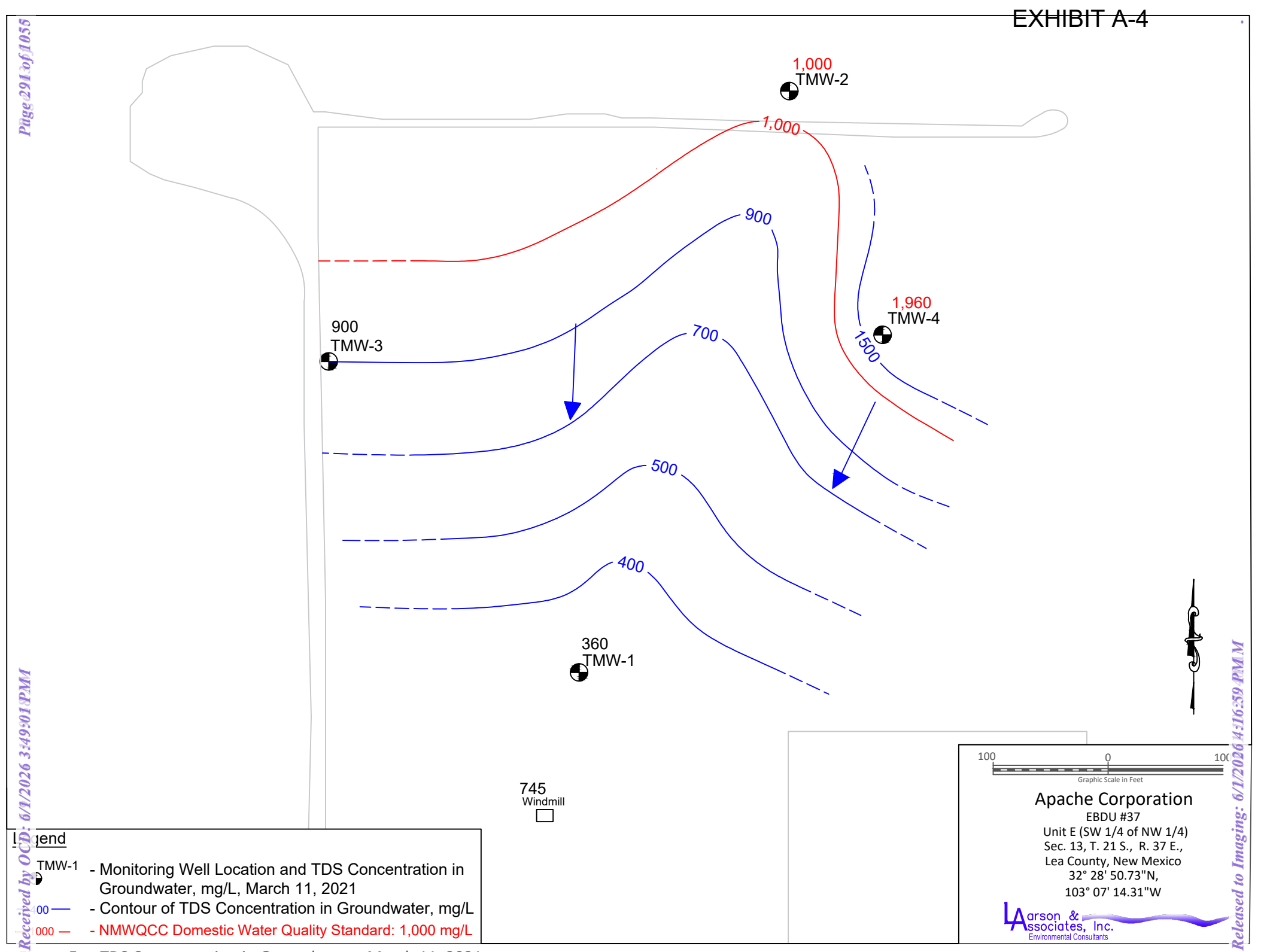


Figure 5a - TDS Concentration in Groundwater, March 11, 2021

Received by OCD: 6/1/2026 3:49:01 PM

Released to Imaging: 6/1/2026 4:16:59 PM

Appendix A

Initial C-141

Received by OCD: 7/26/2019 8:04:17 AM
Received by OCD: 6/1/2026 3:49:01 PM

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Release Notification

Responsible Party

Responsible Party: Apache Corporation	OGRID 873
Contact Name: Bruce Baker	Contact Telephone: (432) 631-6982
Contact email: Larry.Baker@apachecorp.com	Incident # *(assigned by OCD)*
Contact Mailing Address: 2350 W. Marland Blvd, Hobbs, NM 88240	

Location of Release Source

Latitude: W 32.4807053 Longitude: N -103.123085

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: EBDU #37 WIW	Site Type: Water Injection Well
Date Release Discovered: July 14, 2019	API # *3002506556*

Unit Letter	Section	Township	Range	County
E	12	21S	37E	LEA

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name: William Stephens*)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (Unknown bbls)	Volume Recovered (Unknown bbls)
☒ Produced Water	Volume Released (Unknown bbls)	Volume Recovered (Unknown bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Isolation valve failure due to internal corrosion.

Released to Imaging: 6/1/2026 4:16:59 PM

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Via email given to NM OCD by Bruce Baker, Senior Environmental Technician, Apache Corporation

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Jeff Broom Title: Environmental Technician

Signature: _____ Date: 07/24/2019

Email: Jeffrey.Broom@apachecorp.com Telephone: (432) 664-4677

OCD Only

Received by: Dylan Rose-Coss Date: 08/09/2019

Appendix B

OCD Communications

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Rachel Owen
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Monday, December 23, 2019 3:21:06 PM

12/23/2019

Apache Corp. – Larry Baker
Larson Environmental

RE: 1RP-5636/EBDU #37, the following:

The attached/stringed email as an addendum to offered Work Plan is approved, including the location of proposed monitor wells, as was discussed recently on the telephone.

Please keep a copy of this communication for your records, as NO paper copy will follow. It may take some days for this to be uploaded to The Oil Conservation Division (OCD) data base,

ODE appreciates your efforts.

Sincerely,

Bradford Billings
EMNRD/OCD
Santa Fe, NM

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations

---

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, December 23, 2019 12:58 PM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
Subject: [EXT] Re: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Dear Bradford,
This email will confirm our phone conversation on December 20, 2019 for the EBDU #37 produced water release:

- Apache will install a boring in the bottom of the excavation to delineate the vertical extent of chloride in soil. Soil samples will be collected beginning at the bottom of the excavation and every five (5) feet thereafter until chloride decreases below 600 mg/Kg or groundwater is encountered;
- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs;
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient;
- Apache will close the excavation at Area 1 according to the remediation plan dated October 29, 2019;
- Apache will close the excavation at Area 2, based on the laboratory results of samples from the boring to be placed in the bottom of the excavation, by filling the excavation to approximately 5 feet bgs with clean caliche, installing a 20 mill thickness polyethylene liner at approximately 5 feet bgs and backfilling to surface with clean topsoil;
- Seed Area 1 and Area 2 following remediation according to landowner requirements;
- Perform quarterly groundwater monitoring (5 wells) and reporting.

Your approval is this addendum remediation plan is requested. Please contact Bruce Baker with Apache or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Robert Nelson
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Tuesday, September 1, 2020 4:10:21 PM

09/01/2020

Mark,

As stated below was agreed in our phone conversation.

Bradford Billings

EMNRD/OCD

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations

From: Mark Larson <Mark@laenvironmental.com>
Sent: Tuesday, September 1, 2020 10:48 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
This email confirms our call today, September 1, 2020, for approval to complete backfilling the excavation in the swale at EBDU #37. As discussed the excavation is currently backfilled with caliche to approximately 5 feet below ground surface (bgs). NMOCD approved filling the remainder of the excavation to three (3) feet with clean caliche and to ground surface with topsoil. Since Apache is finishing backfilling the north excavation with topsoil it will fill the excavation in the swale with topsoil from 5 feet to ground surface. Notification will be submitted o NMOCD at least 7 days excluding weekends prior to installing monitoring wells. Please let me know if this is not consistent with our discussion. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.
Thank you,
Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656

Fax – 432-687-0456
mark@laenvironmental.com

From: Mark Larson
Sent: Thursday, August 13, 2020 8:26 AM
To: 'Bradford.Billings@state.nm.us' <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Soil sampling at EBDU #37 was completed on August 11, 202. The laboratory reported chloride above the OCD closure criteria of 600 milligrams per kilogram (mg/Kg) in two (2) samples: BH-3, 10 feet (774 mg/Kg) and 12 feet (666 mg/Kg). Chloride was 419 mg/Kg in the sample from 14 feet. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation and fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the boring locations. Table 4 presents the confirmation composite sample locations. Drilling and installation for two (2) monitoring wells is scheduled for Monday, August 18th.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

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507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Sent: Monday, August 10, 2020 10:51 AM
To: Mark Larson <Mark@laenvironmental.com>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

08/10/2020

Hello M. Baker (Apache) and Mr. Larson (LAI),

As OCD has been informed you are looking to proceed on the site tomorrow, the following:

OCD approves the modifications as indicated in attached email form LAI. If the circumstances occur as is possible, there would be no need for the liner, and OCD agrees. OCD appreciates the desire to generate accurate data and is please for your efforts along those lines. If field data indicates a modification please attempt to contact me on phone or email.

Thank you and please be safe and careful.

Sincerely,

Bradford Billings
EMNRD/OCD

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, August 10, 2020 8:49 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
I am following up on the email below to see if you have had a moment to review.
Thank you,
Mark

From: Mark Larson
Sent: Friday, August 7, 2020 11:45 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Apache Corporation has completed backfilling the deep excavation (Area 2) at EBUD #37 (1RP-5636) with clean caliche to approximately five (5) feet below ground surface (bgs) to allow access for a Geoprobe Model 7822DT to delineate the vertical extent of chloride in soil below the excavation at approximately 12 feet bgs. Personnel from Larson & Associates, Inc. (LAI) collected soil samples at the proposed boring location (BH-1) near the center of the excavation at 10, 12, 14, 16, 18 and 20 feet bgs, on August 3, 2020. The laboratory reported chloride at 11.6 mg/Kg (10 feet), 13.3 mg/Kg (12 feet), 13.4 mg/Kg (14 feet), 22.9 mg/Kg (16 feet), 34.4 mg/Kg (18 feet) and 24.7 mg/Kg at 20 feet bgs. Previous bottom samples from B15 collected on August 8, 2019, from 13, 15, 17, 19, 21 and 22 feet bgs, reported chloride at 720 mg/Kg, 1,840 mg/Kg, 1,950 mg/Kg, 3,800 mg/Kg, 544 mg/Kg, and 3,440 mg/Kg, respectively, and suggested possible sample cross contamination. Benzene, BTEX and TPH were the analytical method reporting limits. LAI personnel collected composite sidewall samples from the excavation to approximately 5 feet that were analyzed for benzene, BTEX and TPH. The final concentrations are below the OCD cleanup levels in Table 1 (19.15.29 NMAC).

Apache requests approval from OCD to collect additional delineation soil samples with the Geoprobe from four (4) locations (north, south, east and west) from location BH-1 at the same depths (10, 12,14,16,18 and 20 feet) and analyze the samples for chloride. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation If chloride concentrations are below the OCD remediation limit (600 mg/Kg). Apache will fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the proposed borings BH-2 through BH-5. Figure 2a presents the composite soil sample locations. Table 4 presents the confirmation composite sample locations.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

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Larson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

From: Mark Larson <Mark@laenvironmental.com>

Sent: Monday, December 23, 2019 1:58 PM
To: Bradford.Billings@state.nm.us
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
Subject: Re: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

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mark@laenvironmental.com



"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Robert Nelson
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Monday, August 10, 2020 11:03:12 AM

08/10/2020

Hello M. Baker (Apache) and Mr. Larson (LAI),

As OCD has been informed you are looking to proceed on the site tomorrow, the following:

OCD approves the modifications as indicated in attached email form LAI. If the circumstances occur as is possible, there would be no need for the liner, and OCD agrees. OCD appreciates the desire to generate accurate data and is please for your efforts along those lines. If field data indicates a modification please attempt to contact me on phone or email.

Thank you and please be safe and careful.

Sincerely,

Bradford Billings
EMNRD/OCD

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, August 10, 2020 8:49 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

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From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, December 23, 2019 1:58 PM

To: Bradford.Billings@state.nm.us
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
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Your approval is this addendum remediation plan is requested. Please contact Bruce Baker with Apache or me if you have questions.

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Environmental Consultants

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Appendix C

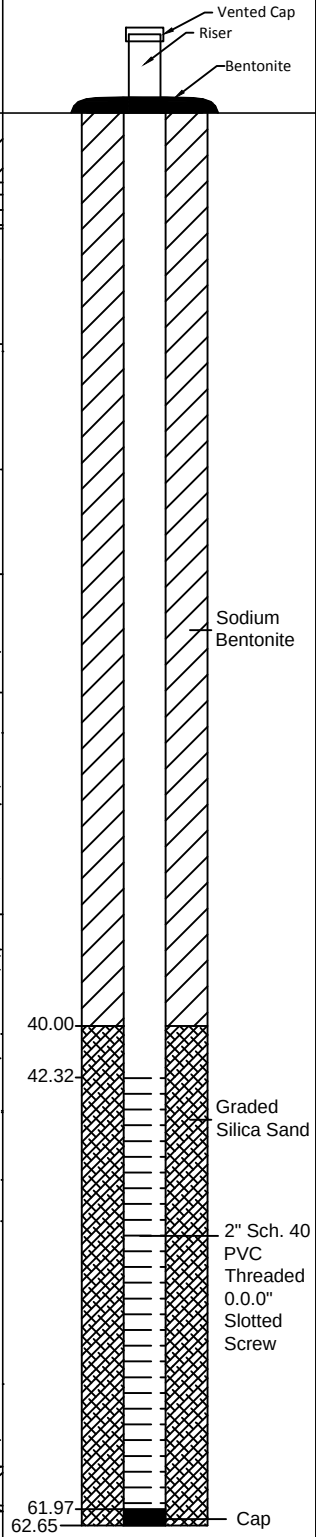
Boring Logs

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Silty Clay, 7.5YR, 5/1, Gray, Very Fine Grained Quartz Sand, Dry	CL	
	5	Caliche, 7.5YR, 7/1 to 7/2, Pinkish Gray, Sandy, Fine to Very Fine Grained Quartz Sand, Dry	Caliche	
	10	Silty Sand, 10YR, 6/4, Light Yellowish ..., Very Fine to Fine Grained Quartz Sand, Poorly Sorted, Subrounded, Loose	SM	
	15			
	20	7.5YR, 6/6, Reddish Yellow Below 10', Poorly Sorted, ... Round		
	25	10YR, 7/4, Very Pale Brown Below 15'		
	30	Sand, 5YR, 5/6 to 6/6, Yellowish Red to Reddish Yellow, Very Fine Grained Quartz Sand, Poorly Sorted, Round, Moist, Very Moist	SW	
	35	Below 35'		
	40	Sandstone, 5YR, 6/6, Reddish Yellow, Very Fine Grained Quartz Sand,Poorly Sorted, Moderately Well Cemented to Well Cemented	Sand Stone	
46.72	45			
	50			
	55			
	60	Gravelly Sand, 7.5YR, 6/6, Reddish Yellow, Fine to Medium Grained Quartz Sand, Round, Cobbles to 40mm	SP	
		TD: 62'		

Start: 11:40
Finish: 12:58

Surface Elevation:
TOC Elecation:



NUMBER	RECOVERY	DEPTH
		1
		5
		10
		15
		20
		25
		30
		35
		40
		45
		60

REMARKS

BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp./ 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : _____
DRILLING METHOD : SR/WR

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-19-2019

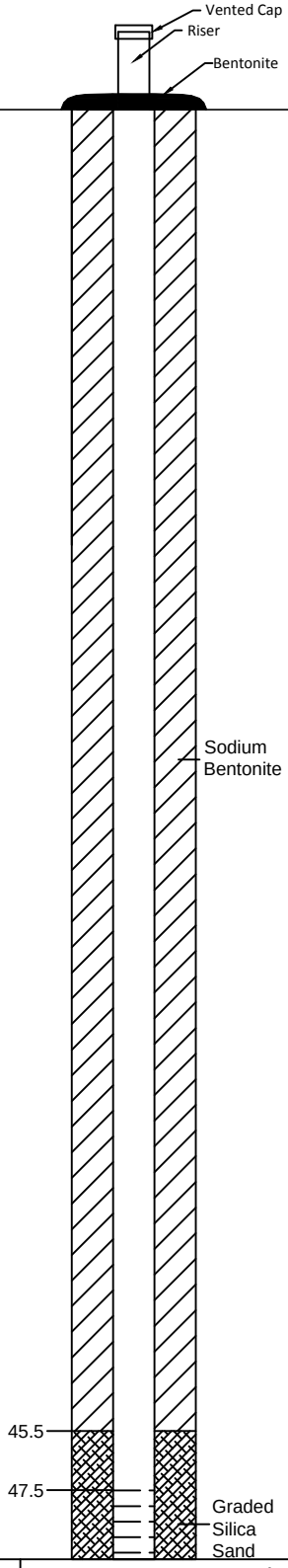
BORING NUMBER : TMW-1

BORING RECORD

Start: 15:02
Finish: 15:55

Surface Elevation: 3,563.50'
TOC Elecation: 3,566.23'

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	NUMBER	RECOVERY	DEPTH	REMARKS BACKGROUND PID READING
	0	Silty Clay, 10YR, 5/6, Ash Brown, Dry	CL					15:02
	5	Caliche, 7.5YR, 8/2, Pinkish White, Sandy to Moderate Very Fine Grained Quartz Sand	Caliche					15:03
	10							15:05
	15	Silty Sand, 7.5YR, 7/2, Pinkish Gray, Very Fine Grained Quartz Sand, Poorly Sorted, Dry	SM					15:10
	20							15:15
	25	Sand, 5YR, 6/0, Reddish Yellow, Very Fine Grained Quartz Sand, Poorly Sorted, Dry	SW					15:17
	30							15:22
	35							15:23
	40							15:28
	45	Sand, 5YR, 6/6, Reddish Yellow, Moderate Well Cemented, Poorly Sorted, Dry	SW					15:30
		Continue						



BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

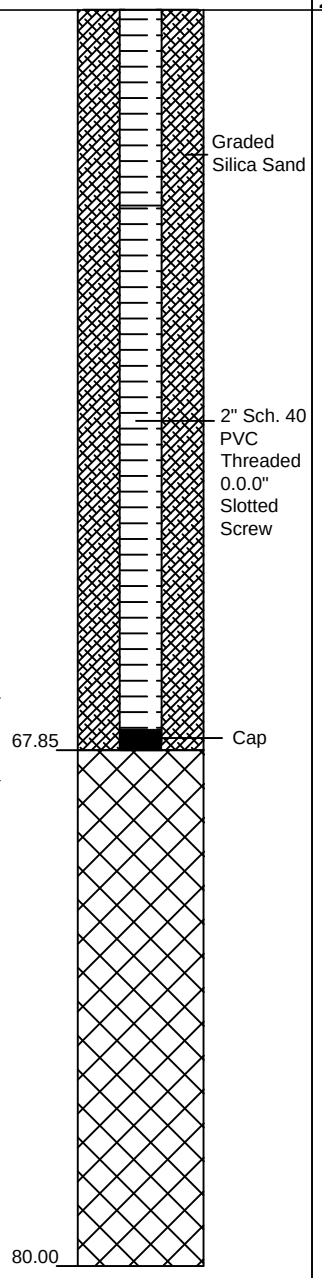
DRILL DATE : 9-20-2019
BORING NUMBER : TMW-2

BORING RECORD

Start: 15:02
Finish: 15:55

Surface Elevation: 3,563.50'
TOC Elecation: 3,566.23'

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	*Continue*	NUMBER	RECOVERY	DEPTH	REMARKS BACKGROUND PID READING
	50	*Continue*							SOIL : PPM SOIL : PPM
	55	Silty and Clayey Below 50', Moist at 55'	SM-SC						
	60								
	65								
	70								
	75								
		Gravel, 7.5YR, 4/3, Light Brown, Poorly Sorted, Round, Red Bed	GW						
	80	TD: 79'							



ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-20-2019
BORING NUMBER : TMW-2

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

BORING RECORD

Start: 09:35 MST
Finish: 10:30 MST

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Sand, 7.5YR 4/4, Brown, Fine to Very Fine Quartz Sand,Quartz and Feldspar Moderate to Well Sorted, Sub Rounded to Well Rounded	SM	
	5			
	10	Caliche, 7.5YR 8/2, Pinkish White, Sandy, Fine to Very Fine Grains, Well Sorted, Well Rounded	Caliche	
	15			
	20	Sand, 10YR 8/2, Very Pale Brown, Quartz Rich Sand, Well Rounded to Very Well Rounded, Very Well Sorted, Fine to Very Fine Grained Quartz Sand	SM	
	25			
	30	7.5YR 5/6, Strong Brown, Oxidized, Quartz Rich, Well Rounded to Very Well Rounded, Very Well Sorted, Fine to Very Fine Grained Quartz Sand with Increase in Depth Lithology Remains the Same		
	35			
	40	@37' becomes Silty to Very Fine Grained Quartz Sand to 65'		
	45			
	50			
	55		SM	
	60			
	65			
	70	Gravelly Sand, 7.5YR, Strong Brown, Fine to Very Fine Coarse Sand, Quartz and Feldspar, Oxidized, Sub Angular to Sub Rounded, Gravel(5-15mm), Poorly Sorted	SP	
	75			
		TD: 68.41'		

PID READING — PPM X _____ (2 4 6 8 10 12 14 16 18)

SAMPLE NUMBER	PID READING	RECOVERY	DEPTH	REMARKS: BACKGROUND PID READING
1			1	SOIL : _____ PPM
2			5	SOIL : _____ PPM
3			10	
4			15	
5			20	
6			25	
7			30	
8			35	
9			40	
10			45	
11			50	
12			55	
13			60	
14			65	
15			68	

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 09-29-2020

BORING NUMBER : TMW-3

JOB NUMBER : Apache/ 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : T. Jackson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

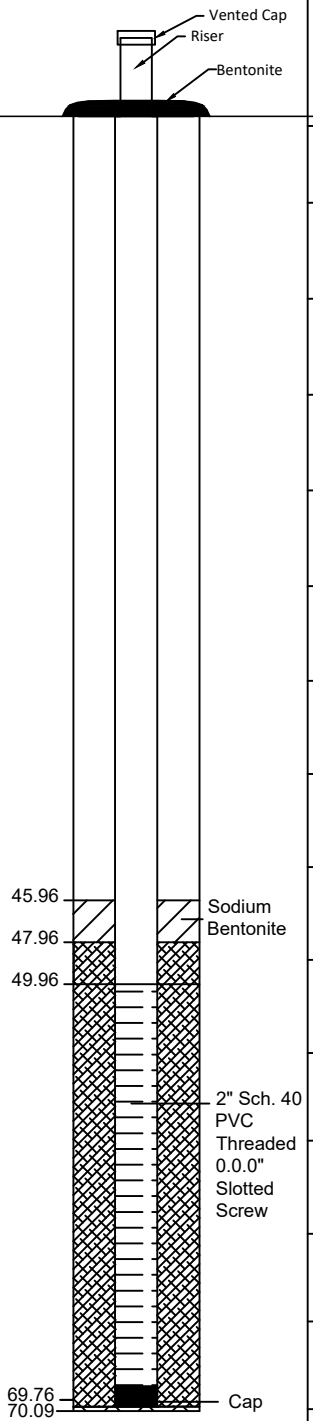
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BORING RECORD

Start: 12:45
Finish: 13:40

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Caliche, 7.5YR 8/2, Pinkish White, Medium to Very Fine, Poorly Sorted, Sub Angular to Sub Rounded	Caliche	
	5			
	10			
	15	Sand, 10YR 8/2, Very Pale Brown, Quartz Rich Sand, Well Rounded to Very Well Rounded, Very Well Sorted, Fine to Very Fine Quartz Sand	SM	
	20			
	25	7.5YR 5/6, Strong Brown, Oxidized, Quartz Rich Sand, Sub Angular to Sub Rounded, Poorly Sorted, Coarse to Fine Grained Quartz Sand with Increase in Depth @34' Lithology Remained Constant and Grain Size Decreased to Fine to Very Fine Quartz Sand, Well Sorted, Rounded to Well Rounded		
	30			
	35			
	40			
	45			
	50			
	55	Sand, 7.5YR, Strong Brown, With Gravel, Fine to Very Coarse Quartz Sand, Quartz and Feldspar, Oxidized, Sub Angular to Sub Rounded, Gravel (5-15mm), Poorly Sorted	SM	
	60			
	65			
	70	TD: 70.09'		
	75			

PID READING / SAMPLE / REMARKS



NUMBER	RECOVERY	DEPTH
1		1
2		5
3		10
4		15
5		20
6		25
7		30
8		35
9		40
10		45
11		50
12		55
13		60
14		65
15		70

BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache/ 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : T. Jackson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 09-29-2020

BORING NUMBER : TMW-4

Appendix D

Laboratory Report

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins Xenco, Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-387-1
Client Project/Site: Apache-EBDU #37

For:
Larson & Associates, Inc.
507 N Marienfeld
Suite 202
Midland, Texas 79701

Attn: Mr. Mark J Larson

Holly Taylor

Authorized for release by:
3/26/2021 9:50:23 AM

Holly Taylor, Project Manager
(806)794-1296
holly.taylor@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Laboratory Job ID: 880-387-1

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Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Subcontract

Qualifier	Qualifier Description
K	Sample analyzed outside of recommended hold time.
U	Analyte was not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Job ID: 880-387-1

Laboratory: Eurofins Xenco, Midland

Narrative

Job Narrative
880-387-1

Comments
No additional comments.

Receipt
The samples were received on 3/15/2021 9:18 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
See attached subcontract report.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method TDS: This method was subcontracted to Eurofins Stafford. The subcontract laboratory certification is different from that of the facility issuing the final report.

Detection Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-1 — Lab Sample ID: 880-387-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	10.9		0.500		mg/L	1		300.0	Total/NA
Total Dissolved Solids	360	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: TWM-3 — Lab Sample ID: 880-387-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	213		5.00		mg/L	10		300.0	Total/NA
Total Dissolved Solids	900	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: TWM-2 — Lab Sample ID: 880-387-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	293		5.00		mg/L	10		300.0	Total/NA
Total Dissolved Solids	1000	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: TWM-4 — Lab Sample ID: 880-387-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	834		10.0		mg/L	20		300.0	Total/NA
Total Dissolved Solids	1960	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: Windmill — Lab Sample ID: 880-387-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	252		2.50		mg/L	5		300.0	Total/NA
Total Dissolved Solids	745	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: Dup-1 — Lab Sample ID: 880-387-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	259		2.50		mg/L	5		300.0	Total/NA
Total Dissolved Solids	798	K	5.00		mg/L	1		TDS	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-1

Date Collected: 03/11/21 08:53
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Toluene	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Total BTEX	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/24/21 02:09	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/24/21 02:09	1
o-Xylene	<2.00	U	2.00		ug/L			03/24/21 02:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*03/24/21 02:09*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*		*03/24/21 02:09*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**10.9**		0.500		mg/L			03/17/21 23:08	1

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**360**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample ID: TWM-3

Date Collected: 03/11/21 09:12
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-2
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 10:50	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 10:50	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 10:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*03/20/21 10:50*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*		*03/20/21 10:50*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**213**		5.00		mg/L			03/17/21 23:17	10

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**900**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-2

Date Collected: 03/11/21 09:36
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-3
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 11:11	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 11:11	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 11:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*03/20/21 11:11*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/20/21 11:11*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**293**		5.00		mg/L			03/17/21 23:26	10

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1000**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample ID: TWM-4

Date Collected: 03/11/21 10:05
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-4
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 11:31	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 11:31	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 11:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*03/20/21 11:31*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/20/21 11:31*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**834**		10.0		mg/L			03/17/21 23:35	20

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1960**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: Windmill

Lab Sample ID: 880-387-5
Matrix: Water
Date Collected: 03/12/21 13:26
Date Received: 03/15/21 09:18

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 11:52	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 11:52	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*03/20/21 11:52*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/20/21 11:52*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**252**		2.50		mg/L			03/18/21 00:02	5

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**745**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample ID: Dup-1

Lab Sample ID: 880-387-6
Matrix: Water
Date Collected: 03/12/21 00:00
Date Received: 03/15/21 09:18

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Toluene	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Total BTEX	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/24/21 02:30	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/24/21 02:30	1
o-Xylene	<2.00	U	2.00		ug/L			03/24/21 02:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*03/24/21 02:30*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/24/21 02:30*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**259**		2.50		mg/L			03/18/21 00:11	5

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**798**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)										
820-139-B-4 MS	Matrix Spike	93	99										
820-139-B-4 MSD	Matrix Spike Duplicate	97	101										
880-387-1	TWM-1	91	102										
880-387-2	TWM-3	102	99										
880-387-3	TWM-2	108	101										
880-387-4	TWM-4	107	101										
880-387-5	Windmill	108	101										
880-387-6	Dup-1	95	101										
890-344-A-1 MS	Matrix Spike	100	98										
890-344-A-1 MSD	Matrix Spike Duplicate	103	95										
LCS 880-592/3	Lab Control Sample	100	100										
LCS 880-750/33	Lab Control Sample	94	94										
LCSD 880-592/4	Lab Control Sample Dup	100	100										
LCSD 880-750/34	Lab Control Sample Dup	97	100										
MB 880-592/8	Method Blank	102	97										
MB 880-598/5-A	Method Blank	111	95										
MB 880-750/39	Method Blank	115	96										

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-592/8
Matrix: Water
Analysis Batch: 592

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Toluene	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Total BTEX	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/19/21 10:29	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/19/21 10:29	1
o-Xylene	<2.00	U	2.00		ug/L			03/19/21 10:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*03/19/21 10:29*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*		*03/19/21 10:29*	*1*

Lab Sample ID: LCS 880-592/3
Matrix: Water
Analysis Batch: 592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			100	104.1		ug/L		104	70 - 130		
Ethylbenzene			100	114.1		ug/L		114	70 - 130		
Toluene			100	110.0		ug/L		110	70 - 130		
m-Xylene & p-Xylene			200	233.0		ug/L		117	70 - 130		
o-Xylene			100	112.0		ug/L		112	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: LCSD 880-592/4
Matrix: Water
Analysis Batch: 592

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			100	110.6		ug/L		111	70 - 130	6	20
Ethylbenzene			100	119.9		ug/L		120	70 - 130	5	20
Toluene			100	115.8		ug/L		116	70 - 130	5	20
m-Xylene & p-Xylene			200	244.2		ug/L		122	70 - 130	5	20
o-Xylene			100	117.1		ug/L		117	70 - 130	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-344-A-1 MS
Matrix: Water
Analysis Batch: 592

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<2.00	U F1	100	114.4		ug/L		114	70 - 130		

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 890-344-A-1 MS
Matrix: Water
Analysis Batch: 592

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	<2.00	U F1	100	121.0		ug/L		121	70 - 130
Toluene	<2.00	U F1	100	118.2		ug/L		118	70 - 130
m-Xylene & p-Xylene	<4.00	U F1	200	247.1		ug/L		124	70 - 130
o-Xylene	<2.00	U F1	100	119.3		ug/L		119	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 890-344-A-1 MSD
Matrix: Water
Analysis Batch: 592

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25
Ethylbenzene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25
Toluene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25
m-Xylene & p-Xylene	<4.00	U F1	200	<4.00	U F1	ug/L		0	70 - 130	NC	25
o-Xylene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: MB 880-598/5-A
Matrix: Water
Analysis Batch: 750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00	ug/L		03/23/21 10:55	03/23/21 14:21	1
Ethylbenzene	<2.00	U	2.00	ug/L		03/23/21 10:55	03/23/21 14:21	1
Toluene	<2.00	U	2.00	ug/L		03/23/21 10:55	03/23/21 14:21	1
Total BTEX	<2.00	U	2.00	ug/L		03/23/21 10:55	03/23/21 14:21	1
Xylenes, Total	<4.00	U	4.00	ug/L		03/23/21 10:55	03/23/21 14:21	1
m-Xylene & p-Xylene	<4.00	U	4.00	ug/L		03/23/21 10:55	03/23/21 14:21	1
o-Xylene	<2.00	U	2.00	ug/L		03/23/21 10:55	03/23/21 14:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*	*03/23/21 10:55*	*03/23/21 14:21*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*03/23/21 10:55*	*03/23/21 14:21*	*1*

Lab Sample ID: MB 880-750/39
Matrix: Water
Analysis Batch: 750

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00	ug/L			03/24/21 01:27	1
Ethylbenzene	<2.00	U	2.00	ug/L			03/24/21 01:27	1

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 880-750/39
Matrix: Water
Analysis Batch: 750

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Toluene	<2.00	U	2.00		ug/L			03/24/21 01:27	1
Total BTEX	<2.00	U	2.00		ug/L			03/24/21 01:27	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/24/21 01:27	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/24/21 01:27	1
o-Xylene	<2.00	U	2.00		ug/L			03/24/21 01:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*03/24/21 01:27*	*1*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*		*03/24/21 01:27*	*1*

Lab Sample ID: LCS 880-750/33
Matrix: Water
Analysis Batch: 750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			100	96.25		ug/L		96	70 - 130		
Ethylbenzene			100	93.87		ug/L		94	70 - 130		
Toluene			100	99.05		ug/L		99	70 - 130		
m-Xylene & p-Xylene			200	191.1		ug/L		96	70 - 130		
o-Xylene			100	93.23		ug/L		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: LCSD 880-750/34
Matrix: Water
Analysis Batch: 750

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			100	93.34		ug/L		93	70 - 130	3	20
Ethylbenzene			100	93.86		ug/L		94	70 - 130	0	20
Toluene			100	98.22		ug/L		98	70 - 130	1	20
m-Xylene & p-Xylene			200	183.2		ug/L		92	70 - 130	4	20
o-Xylene			100	92.33		ug/L		92	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 820-139-B-4 MS
Matrix: Water
Analysis Batch: 750

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<2.00	U	100	96.80		ug/L		97	70 - 130		
Ethylbenzene	<2.00	U	100	95.39		ug/L		95	70 - 130		
Toluene	<2.00	U	100	101.2		ug/L		101	70 - 130		

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 820-139-B-4 MS
Matrix: Water
Analysis Batch: 750

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
m-Xylene & p-Xylene	<4.00	U	200	190.3		ug/L		95	70 - 130
o-Xylene	<2.00	U	100	91.70		ug/L		92	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 820-139-B-4 MSD
Matrix: Water
Analysis Batch: 750

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<2.00	U	100	99.07		ug/L		99	70 - 130	2	25
Ethylbenzene	<2.00	U	100	101.1		ug/L		101	70 - 130	6	25
Toluene	<2.00	U	100	104.3		ug/L		104	70 - 130	3	25
m-Xylene & p-Xylene	<4.00	U	200	201.7		ug/L		101	70 - 130	6	25
o-Xylene	<2.00	U	100	98.08		ug/L		98	70 - 130	7	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-549/3
Matrix: Water
Analysis Batch: 549

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500		mg/L			03/17/21 22:13	1

Lab Sample ID: LCS 880-549/4
Matrix: Water
Analysis Batch: 549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride			25.0	23.89		mg/L		96	90 - 110

Lab Sample ID: LCSD 880-549/5
Matrix: Water
Analysis Batch: 549

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			25.0	23.77		mg/L		95	90 - 110	1	20

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-415-A-1 MS
Matrix: Water
Analysis Batch: 549

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	51.0		25.0	75.29		mg/L		97	90 - 110

Lab Sample ID: 880-415-A-1 MSD
Matrix: Water
Analysis Batch: 549

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	51.0		25.0	75.26		mg/L		97	90 - 110	0	20

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Lab Sample ID: 3154281-1-BLK
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	BLANK Result	BLANK Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5	U	5		mg/L		03/21/21 12:30	03/21/21 12:30	1

Lab Sample ID: 3154281-1-BKS
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	987		mg/L		99	80 - 120

Lab Sample ID: 3154281-1-BSD
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids	1000	955		mg/L		96	80 - 120	3	10

Lab Sample ID: 692017-006 D
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	Sample Result	Sample Qualifier	DUP Result	DUP Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	798		742		mg/L		7	10

Received by OCD: 6/1/2026 3:49:01 PM

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

GC VOA

Analysis Batch: 592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-2	TWM-3	Total/NA	Water	8021B	
880-387-3	TWM-2	Total/NA	Water	8021B	
880-387-4	TWM-4	Total/NA	Water	8021B	
880-387-5	Windmill	Total/NA	Water	8021B	
MB 880-592/8	Method Blank	Total/NA	Water	8021B	
LCS 880-592/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-592/4	Lab Control Sample Dup	Total/NA	Water	8021B	
890-344-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
890-344-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Prep Batch: 598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-598/5-A	Method Blank	Total/NA	Water	5035	

Analysis Batch: 750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	8021B	
880-387-6	Dup-1	Total/NA	Water	8021B	
MB 880-598/5-A	Method Blank	Total/NA	Water	8021B	598
MB 880-750/39	Method Blank	Total/NA	Water	8021B	
LCS 880-750/33	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-750/34	Lab Control Sample Dup	Total/NA	Water	8021B	
820-139-B-4 MS	Matrix Spike	Total/NA	Water	8021B	
820-139-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

HPLC/IC

Analysis Batch: 549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	300.0	
880-387-2	TWM-3	Total/NA	Water	300.0	
880-387-3	TWM-2	Total/NA	Water	300.0	
880-387-4	TWM-4	Total/NA	Water	300.0	
880-387-5	Windmill	Total/NA	Water	300.0	
880-387-6	Dup-1	Total/NA	Water	300.0	
MB 880-549/3	Method Blank	Total/NA	Water	300.0	
LCS 880-549/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-549/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-415-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-415-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Subcontract

Analysis Batch: 3154281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	TDS	3154281_P
880-387-2	TWM-3	Total/NA	Water	TDS	3154281_P
880-387-3	TWM-2	Total/NA	Water	TDS	3154281_P
880-387-4	TWM-4	Total/NA	Water	TDS	3154281_P
880-387-5	Windmill	Total/NA	Water	TDS	3154281_P
880-387-6	Dup-1	Total/NA	Water	TDS	3154281_P
3154281-1-BLK	Method Blank	Total/NA	WATER	TDS	3154281_P

Released to Imaging: 6/1/2026 4:16:59 PM

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Subcontract (Continued)

Analysis Batch: 3154281 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
3154281-1-BKS	Lab Control Sample	Total/NA	WATER	TDS	3154281_P
3154281-1-BSD	Lab Control Sample Dup	Total/NA	WATER	TDS	3154281_P
692017-006 D	Duplicate	Total/NA	WATER	TDS	3154281_P

Prep Batch: 3154281_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	NONE	
880-387-2	TWM-3	Total/NA	Water	NONE	
880-387-3	TWM-2	Total/NA	Water	NONE	
880-387-4	TWM-4	Total/NA	Water	NONE	
880-387-5	Windmill	Total/NA	Water	NONE	
880-387-6	Dup-1	Total/NA	Water	NONE	
3154281-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
3154281-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
3154281-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	
692017-006 D	Duplicate	Total/NA	WATER	***DEFAULT PREP***	

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-1
Date Collected: 03/11/21 08:53
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	750	03/24/21 02:09	PXS	XM
Total/NA	Analysis	300.0		1	549	03/17/21 23:08	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: TWM-3
Date Collected: 03/11/21 09:12
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 10:50	MR	XM
Total/NA	Analysis	300.0		10	549	03/17/21 23:17	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: TWM-2
Date Collected: 03/11/21 09:36
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 11:11	MR	XM
Total/NA	Analysis	300.0		10	549	03/17/21 23:26	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: TWM-4
Date Collected: 03/11/21 10:05
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 11:31	MR	XM
Total/NA	Analysis	300.0		20	549	03/17/21 23:35	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: Windmill
Date Collected: 03/12/21 13:26
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 11:52	MR	XM
Total/NA	Analysis	300.0		5	549	03/18/21 00:02	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: Dup-1
Date Collected: 03/12/21 00:00
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	750	03/24/21 02:30	PXS	XM
Total/NA	Analysis	300.0		5	549	03/18/21 00:11	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Laboratory References:

XM = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Job ID: 880-387-1
Project/Site: Apache-EBDU #37

Laboratory: Eurofins Xenco, Midland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-21

Laboratory: Eurofins Stafford

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215-21-39	06-30-21

Method Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XM
300.0	Anions, Ion Chromatography	MCAWW	XM
2540C	SM 2540C Total Dissolved Solids (TDS)	SM	XS
5030B	Purge and Trap	SW846	XM

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XM = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440
XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
880-387-1	TWM-1	Water	03/11/21 08:53	03/15/21 09:18	
880-387-2	TWM-3	Water	03/11/21 09:12	03/15/21 09:18	
880-387-3	TWM-2	Water	03/11/21 09:36	03/15/21 09:18	
880-387-4	TWM-4	Water	03/11/21 10:05	03/15/21 09:18	
880-387-5	Windmill	Water	03/12/21 13:26	03/15/21 09:18	
880-387-6	Dup-1	Water	03/12/21 00:00	03/15/21 09:18	

EXHIBIT A-1
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

880-387 Chain of Custody

№ 1539

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
Data Reported to
N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 3/15/2021 PAGE 1 OF 1
PO#: LAB WORK ORDER#:
PROJECT LOCATION OR NAME: Apache - EBDU #32
LAI PROJECT #: 19-0112-49 COLLECTOR: RN, TJ MS

TRRP report? ☐ Yes ☒ No
TIME ZONE: Time zone/State MST

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl x3 | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE x2 | UNPRESSERVED

ANALYSES: BTEX ☒ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D W 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐

Field Sample I D	Lab #	Date	Time	Matrix	# of Containers	HCl x3	HNO_3	H_2SO_4 NaOH	ICE x2	UNPRESSERVED	ANALYSES	FIELD NOTES
TMW-1		3/11/21	0853	W	5						X	Direct Bill to Apache
TMW-3		"	0912	"	"						"	
TMW-2		"	0936	"	"						"	
TMW-4		"	1005	"	"						"	Liter, 250, 3 VOA + HCl
windmill		3/12/21	1326	"	"						"	
Dup-1				W	"						"	
TOTAL												

RELINQUISHED BY (Signature)	DATE/TIME 3/15/21 918	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)

LABORATORY Xenco

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP 3.0/3.5 THERM# IR8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

3/26/2021
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Released to Imaging: 6/1/2026 4:16:59 PM

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-387-1

Login Number: 387
List Number: 1
Creator: Teel, Brianna

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)	TDS (mg/L)	Depth To Water (Feet TOC)
NMWQCC Standard:		*0.005	*1	*0.7	*0.62	**250	**1,000	
Windmill	(1) 08/01/2019	<0.001	<0.001	<0.001	<0.003	232	732	--
	(2) 09/23/2019	--	--	--	--	--	--	--
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**259**	688	--
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**274**	730	--
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**287**	930	--
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**252**	745	--
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	**255**	781	--
TMW-1	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	37.4	400	46.18
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	21.1	390	48.90
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	22.6	390	49.31
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	13.1	383	49.42
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	10.9	360	49.41
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	14.5	360	49.67
TMW-2	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	**338**	**1,220**	55.80
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**307**	**1,170**	57.50
	(3) 09/30/2020	<0.00200	0.00227	<0.00200	<0.00200	**314**	**1,040**	58.01
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**298**	**1,050**	58.06
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**293**	**1,000**	58.00
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	**267**	**1,050**	58.12
TMW-3	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00322	<0.00200	0.00448	212	891	57.62
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	214	948	57.68
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	213	900	57.59
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	180	934	57.90
TMW-4	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00314	<0.00200	<0.00200	**1,020**	**2,040**	57.39
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**987**	**2,300**	57.45
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**834**	**1,960**	57.40
	(3) 06/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**745**	**1,190**	57.60

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Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

DUP-1 (Windmill)	([3]) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**276**	794	--
DUP-1 (Windmill)	([3]) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**278**	908	--
DUP-1 (Windmill)	([3]) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**259**	798	--
DUP-1 (Windmill)	([3]) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	**256**	781	--

Notes:
('): analysis performed by Cardinal Laboratories, Hobbs, New Mexico, by EPA SW-846 Method 8021B (BTEX) and titration methods (chloride and TDS).
([2]): analysis performed by DHL Analytical, Round Rock, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([3]): analysis performed by Xenco Laboratories, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([4]): anaylis performed by Eurofins-Xenco, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride). Units reported as ug/L in report, converted to mg/L.
< values: concentration is less than method reporting limit (RL).
*: NMWQCC Human Health Standard
**: NMWQCC Domestic Water Quality Standard
--: no data available
TOC: top of casing
All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)
Bold and highlighted denotes analyte concentration exceeds NMWQCC domestic water quality standard

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ANALYTICAL REPORT

Eurofins Xenco, Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-3001-1
Laboratory Sample Delivery Group: 19-0112-49
Client Project/Site: Apache - EBDU #37

For:
Larson & Associates, Inc.
507 N Marienfeld
Suite 202
Midland, Texas 79701

Attn: Mr. Mark J Larson

Holly Taylor

Authorized for release by:
6/21/2021 7:31:18 AM

Holly Taylor, Project Manager
(806)794-1296
holly.taylor@eurofinset.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Laboratory Job ID: 880-3001-1
SDG: 19-0112-49

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Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Job ID: 880-3001-1

Laboratory: Eurofins Xenco, Midland

Narrative

Job Narrative
880-3001-1

Receipt
The samples were received on 6/14/2021 8:37 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 6.0°C

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: TMW-1

Date Collected: 06/10/21 10:23
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 15:31	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 15:31	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*06/14/21 15:31*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*		*06/14/21 15:31*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14.5**		0.500		mg/L			06/15/21 15:43	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**360**		50.0		mg/L			06/16/21 18:56	1

Client Sample ID: TMW-2

Date Collected: 06/10/21 12:00
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-2
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 15:57	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 15:57	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*06/14/21 15:57*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*		*06/14/21 15:57*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**267**		2.50		mg/L			06/15/21 15:49	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1050**		50.0		mg/L			06/16/21 18:56	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: TMW-3

Date Collected: 06/10/21 11:05
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-3
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 16:22	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 16:22	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*06/14/21 16:22*	*1*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*		*06/14/21 16:22*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**180**		2.50		mg/L			06/15/21 15:56	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**934**		50.0		mg/L			06/16/21 18:56	1

Client Sample ID: TMW-4

Date Collected: 06/11/21 10:50
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-4
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 16:48	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 16:48	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*06/14/21 16:48*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*		*06/14/21 16:48*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**745**		10.0		mg/L			06/15/21 16:18	20

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1990**		100		mg/L			06/16/21 18:56	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: Windmill

Date Collected: 06/10/21 12:26
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-5
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 17:13	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 17:13	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*06/14/21 17:13*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*		*06/14/21 17:13*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**255**		2.50		mg/L			06/15/21 16:25	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**794**		50.0		mg/L			06/16/21 18:56	1

Client Sample ID: Dup-1

Date Collected: 06/10/21 00:00
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-6
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 18:57	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 18:57	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*		*06/14/21 18:57*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*		*06/14/21 18:57*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**256**		2.50		mg/L			06/15/21 16:32	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**781**		50.0		mg/L			06/16/21 18:56	1

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-2930-A-1 MS	Matrix Spike	99	104
880-2930-A-1 MSD	Matrix Spike Duplicate	100	101
880-3001-1	TMW-1	108	103
880-3001-2	TMW-2	105	102
880-3001-3	TMW-3	112	107
880-3001-4	TMW-4	110	105
880-3001-5	Windmill	107	102
880-3001-6	Dup-1	116	88
LCS 880-4074/3	Lab Control Sample	104	104
LCSD 880-4074/4	Lab Control Sample Dup	99	107
MB 880-4074/8	Method Blank	71	84

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-4074/8
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 12:59	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 12:59	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 12:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*71*		*70 - 130*		*06/14/21 12:59*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*		*06/14/21 12:59*	*1*

Lab Sample ID: LCS 880-4074/3
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.09419		mg/L		94	70 - 130		
Toluene			0.100	0.1038		mg/L		104	70 - 130		
Ethylbenzene			0.100	0.1078		mg/L		108	70 - 130		
m-Xylene & p-Xylene			0.200	0.1914		mg/L		96	70 - 130		
o-Xylene			0.100	0.09672		mg/L		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 880-4074/4
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.09313		mg/L		93	70 - 130	1	20
Toluene			0.100	0.1006		mg/L		101	70 - 130	3	20
Ethylbenzene			0.100	0.1055		mg/L		106	70 - 130	2	20
m-Xylene & p-Xylene			0.200	0.1875		mg/L		94	70 - 130	2	20
o-Xylene			0.100	0.09438		mg/L		94	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-2930-A-1 MS
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	0.00880		0.100	0.1055		mg/L		97	70 - 130		

Received by OCD: 6/1/2026 3:49:01 PM

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-2930-A-1 MS
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	0.0123		0.100	0.1165		mg/L		104	70 - 130
Ethylbenzene	<0.00200	U	0.100	0.1064		mg/L		106	70 - 130
m-Xylene & p-Xylene	0.00594		0.200	0.1952		mg/L		95	70 - 130
o-Xylene	<0.00200	U	0.100	0.09681		mg/L		96	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: 880-2930-A-1 MSD
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.00880		0.100	0.09846		mg/L		90	70 - 130	7	25
Toluene	0.0123		0.100	0.1114		mg/L		99	70 - 130	4	25
Ethylbenzene	<0.00200	U	0.100	0.1028		mg/L		103	70 - 130	3	25
m-Xylene & p-Xylene	0.00594		0.200	0.1878		mg/L		91	70 - 130	4	25
o-Xylene	<0.00200	U	0.100	0.09330		mg/L		92	70 - 130	4	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-4120/3
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500		mg/L			06/15/21 14:49	1

Lab Sample ID: LCS 880-4120/4
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride			25.0	23.77		mg/L		95	90 - 110

Lab Sample ID: LCSD 880-4120/5
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			25.0	23.31		mg/L		93	90 - 110	2	20

Released to Imaging: 6/1/2026 4:16:59 PM

Received by OCD: 6/1/2026 3:49:01 PM

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-3041-A-1 MS
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	16.4		25.0	40.52		mg/L		96	90 - 110

Lab Sample ID: 880-3041-A-1 MSD
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	16.4		25.0	41.69		mg/L		101	90 - 110	3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 880-4150/1
Matrix: Water
Analysis Batch: 4150

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<25.0	U	25.0		mg/L			06/16/21 18:56	1

Lab Sample ID: LCS 880-4150/2
Matrix: Water
Analysis Batch: 4150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids			1000	989.0		mg/L		99	80 - 120

Lab Sample ID: LCSD 880-4150/3
Matrix: Water
Analysis Batch: 4150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids			1000	997.0		mg/L		100	80 - 120	1	10

Lab Sample ID: 880-3001-1 DU
Matrix: Water
Analysis Batch: 4150

Client Sample ID: TMW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	360			363.0		mg/L				0.8	10

Released to Imaging: 6/1/2026 4:16:59 PM

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

GC VOA

Analysis Batch: 4074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-3001-1	TMW-1	Total/NA	Water	8021B	
880-3001-2	TMW-2	Total/NA	Water	8021B	
880-3001-3	TMW-3	Total/NA	Water	8021B	
880-3001-4	TMW-4	Total/NA	Water	8021B	
880-3001-5	Windmill	Total/NA	Water	8021B	
880-3001-6	Dup-1	Total/NA	Water	8021B	
MB 880-4074/8	Method Blank	Total/NA	Water	8021B	
LCS 880-4074/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-4074/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-2930-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
880-2930-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

HPLC/IC

Analysis Batch: 4120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-3001-1	TMW-1	Total/NA	Water	300.0	
880-3001-2	TMW-2	Total/NA	Water	300.0	
880-3001-3	TMW-3	Total/NA	Water	300.0	
880-3001-4	TMW-4	Total/NA	Water	300.0	
880-3001-5	Windmill	Total/NA	Water	300.0	
880-3001-6	Dup-1	Total/NA	Water	300.0	
MB 880-4120/3	Method Blank	Total/NA	Water	300.0	
LCS 880-4120/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-4120/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-3041-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-3041-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 4150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-3001-1	TMW-1	Total/NA	Water	SM 2540C	
880-3001-2	TMW-2	Total/NA	Water	SM 2540C	
880-3001-3	TMW-3	Total/NA	Water	SM 2540C	
880-3001-4	TMW-4	Total/NA	Water	SM 2540C	
880-3001-5	Windmill	Total/NA	Water	SM 2540C	
880-3001-6	Dup-1	Total/NA	Water	SM 2540C	
MB 880-4150/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 880-4150/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 880-4150/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
880-3001-1 DU	TMW-1	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: TMW-1
Date Collected: 06/10/21 10:23
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 15:31	MR	XEN MID
Total/NA	Analysis	300.0		1			4120	06/15/21 15:43	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: TMW-2
Date Collected: 06/10/21 12:00
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 15:57	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 15:49	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: TMW-3
Date Collected: 06/10/21 11:05
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 16:22	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 15:56	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: TMW-4
Date Collected: 06/11/21 10:50
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 16:48	MR	XEN MID
Total/NA	Analysis	300.0		20			4120	06/15/21 16:18	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: Windmill
Date Collected: 06/10/21 12:26
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 17:13	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 16:25	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: Dup-1

Date Collected: 06/10/21 00:00
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 18:57	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 16:32	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8021B		Water	Total BTEX

Method Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN MID
5030B	Purge and Trap	SW846	XEN MID

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
880-3001-1	TMW-1	Water	06/10/21 10:23	06/14/21 08:37	
880-3001-2	TMW-2	Water	06/10/21 12:00	06/14/21 08:37	
880-3001-3	TMW-3	Water	06/10/21 11:05	06/14/21 08:37	
880-3001-4	TMW-4	Water	06/11/21 10:50	06/14/21 08:37	
880-3001-5	Windmill	Water	06/10/21 12:26	06/14/21 08:37	
880-3001-6	Dup-1	Water	06/10/21 00:00	06/14/21 08:37	

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EXHIBIT A-4

980-3001 №1578

CHAIN-OF-CUSTODY

6/21/2021

880-3001 Chain of Custody

Larson & Associates, Inc.
Environmental Consultants
Midland, TX 79701
432-687-0901

DATE: 6-11-2021 PAGE 1 OF 1

PO#: _____ LAB WORK ORDER#: _____

PROJECT LOCATION OR NAME: EDDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: MB, TJ, TP

Data Reported to.

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State MST

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TBLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D W 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐

Field Sample I D	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
Tmw-1		6/10/21	1023	W	5				X		X	Direct Bill to Ahrue
Tmw-2		6/10/21	1200									
Tmw-3		6/10/21	1105									
Tmw-4		6/11/21	1050									
windmill		6/10/21	1220									
Dup-1		6/10/21										

TOTAL 6

RELINQUISHED BY (Signature) DATE/TIME 6/14 RECEIVED BY (Signature) 0837

RELINQUISHED BY (Signature) DATE/TIME RECEIVED BY (Signature)

RELINQUISHED BY (Signature) DATE/TIME RECEIVED BY (Signature)

LABORATORY XENCO

TURN AROUND TIME

NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP 5.5/6.0 THERM# IR8

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☑ NOT USED

☐ CARRIER BILL # _____

☑ HAND DELIVERED

Received by OCD: 6/1/2026 3:49:01 PM

Released to Imaging: 6/1/2026 4:16:59 PM

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-3001-1
SDG Number: 19-0112-49

Login Number: 3001
List Number: 1
Creator: Phillips, Kerianna

List Source: Eurofins Xenco, Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 17562

COMMENTS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 17562
	Action Type: [C-141] Release Corrective Action (C-141)

COMMENTS

Created By	Comment	Comment Date
chensley	Waiting on 1&2 quarter reports	8/5/2021

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 17562

CONDITIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 17562
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	8/27/2021

EXHIBIT A-5

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

APPLICATION OF APACHE CORPORATION FOR AN ADJUDICATION HEARING TO CONTEST THE DIVISION'S CONDITIONS OF APPROVAL ON APACHE CORPORATION'S SCOPE OF WORK FOR ADDITIONAL INVESTIGATION, LEA COUNTY, NEW MEXICO,

ORDER NO. R-23728
CASE NO. 24912

FINAL COMMISSION ORDER

This matter, having come before the Oil Conservation Commission ("Commission") on the referral of the Oil Conservation Division Director pursuant to Sections 70-2-6(B) and 70-2-11(B) NMSA 1978 of the Oil and Gas Act ("the Act"), and the Commission, having considered the testimony and other evidence of the parties presented before it at a hearing before the Commission on January 16 and 17, 2025, and having considered the closing statements of both parties, hereby finds, concludes, and orders as follows:

A. FINDINGS OF FACT SUPPORTED BY A PREPONDERANCE OF THE EVIDENCE:

1. The inception of this matter occurred when a release, or releases, of produced water was first reported to the Oil Conservation Division ("the Division") by Apache Corporation ("Apache") in July 2019. The report, on Division Form C-141, noted Apache as the responsible party.

2. The reported release occurred at a location known as the East Blinebury Drinkard Unit #037 ("the Site"), arising from oil and gas operations by Apache conducted pursuant to permit API 30-025-06556 ("the Permit"). However, according to its witness Larry Baker, it "had no idea what was lost."

EXHIBIT A-5

3. As reflected in the aforementioned report, Apache solely owned and operated the Site and infrastructure thereon.

4. In this initial disclosure, Apache stated that it undertook all actions required to stop the release, contain the release, and secure and remediate the Site as required pursuant to 19.15.29.8.C NMAC.

5. In December 2019, based on the information before it at the time, the Division approved Apache's work plan for the Site, which included, *inter alia*, the installation of five (5) monitoring wells, including the aforementioned windmill.

6. Apache submitted a closure report to the Division dated February 9, 2021. *Apache Exhibit A-5*. It noted a "produced Water Spill." It disclosed exceedances of chloride in a majority of its soil samples and well samples. It described the area affected by the release as "approximately 25,000 square feet or 0.57 acres." It also proposed a remediation plan that consisted of limited soil excavation.

7. Based on subsequent soil samples from Apache that reflected increased chloride exceedances, in August, 2020, the Division approved modification of Apache's remediation plan, including the installation of several additional monitoring wells.

8. Beginning in June, 2022, the Division received correspondence from a neighboring landowner expressing concern that the approved remediation and closure plan would allow contamination of local groundwater, including sources of fresh water. *Division Exhibit 2*.

9. From July 2022 to shortly before Apache's request for a hearing, Apache provided additional data from its existing monitoring wells that reflected elevated levels of chlorides and total dissolved solids ("TDS") above normal exceedances, consistently

EXHIBIT A-5

increasing in both scope and amount from what was previously disclosed previously to the Division. The most recent disclosures by Apache occurred in late 2024, again reflecting continuing increases in both scope and amount of chloride and TDS exceedances, including chloride exceedances over twenty times the established limits for groundwater. *Testimony of Brandon Powell, Tr. at 339.*

10. Chlorides do not break down in the environment.

11. In contrast to Apache's initial characterization of the scope of the release, the area contaminated from the release currently contains approximately 2.6 million square feet, or approximately 60 acres.

12. Based on the expertise of the Commission, the aforementioned exceedances reflect injury and damage to neighboring land, and a danger and threat to local sources of fresh water, public health, and the environment.

13. Apache cannot explain or identify the source contamination causing the exceedances of chloride and TDS from samples within the impacted area. Nor can the Division identify the source of the release or releases, or fully delineate the contamination on the Site.

14. Apache cannot estimate the volume of produced water necessary to cause the level of contamination observed in the ground water samples. In particular, Apache cannot explain or estimate the release volume causing the 'spike' in samples taken in October of 2024. Nor can Apache rule out a current and active release based on the increasing exceedances, or otherwise explain the cause of these increasing exceedances.

15. Apache does not contend that the release, or releases, have been contained.

16. Apache cannot explain what it concedes are "puzzling" non-tandem

EXHIBIT A-5

patterns of chloride and TDS exceedances, which usually appear in tandem.

17. From approximately July 2022 through May, 2024, the Division and Apache attempted to reach consensus on a new scope of work that would fully address the Division's concerns regarding contamination and remediation, with increasing numbers of monitoring wells proposed by both sides. This process culminated in a final submission by Apache in approximately September 2024. The Division rejected Apache's proposal as not addressing all the Division's concerns. Apache then elected to pursue an appeal. The Division Director then referred the appeal to the Commission pursuant to Section 70-2-6(B) of the Act.

18. Based on the expertise of the Commission and its review of the evidence before it, the source or sources of groundwater contamination, and the likely future extent of the contamination from those sources, cannot be ascertained at this time with a reasonable degree of scientific certainty and requires additional monitoring as provided in this order.

19. The information currently available does not allow a full characterization of the contamination at the Site.

20. In light of the aforementioned and undisputed release or releases by Apache as the responsible party, and the exceedances resulting therefrom, the following final conditions of approval ("Final COA") attached as **Exhibit A** to this Order shall be a condition of the Permit. The Final COA is reasonably necessary to minimize further injury and damage to neighboring land, to reasonably assess the danger and threat to local sources of fresh water, public health, and the environment, and to provide additional water and soil samples which are necessary to identify sources of contamination that may be migrating to

EXHIBIT A-5

groundwater and to facilitate a remediation plan.

21. The proposed wells in the Final COA are located to include areas either where the horizontal extent of the chloride plume is not fully delineated or within large gaps between existing wells with elevated samples, or to otherwise provide more predictive information regarding the extent of future contamination in the judgment of the Commission. In the individual wells listed as **1a** through **1m** in **Exhibit A**, the Commission provides additional justification for each location.

22. The Final COA differs from the Division's proposal in its closing argument in two respects. First, the Division's proposed well at "1b" was withdrawn by the Division but is included in the Final COA and moved 200 ft East of the windmill. Second, the well proposed by the Division at "1k" (now "1j" in **Exhibit A**) shall be moved to 200 ft Southwest of TMW 19.

23. The Final COA otherwise adopts the Division's proposal, including the strikethroughs included therein.

24. Based on the procedural basis of this appeal, the Commission does not consider at this time what further abatement and remediation may be required as a condition of the Permit, or whether the release or releases presented in this hearing constituted major or minor releases as defined at 19.15.29.7.A and B NMAC. Rather, the Commission is approving a scope of work that includes a monitoring plan that will facilitate a full assessment of the extent of the release or releases, and that will ultimately facilitate a proper remediation plan. Prior to that determination, and due to substantial gaps in knowledge of the release(s), continued investigation is necessary. The Final COA is reasonably calculated to provide such knowledge.

EXHIBIT A-5

B. CONCLUSIONS OF LAW:

1. Pursuant to NMSA 1978, Section 70-2-6(B) of the Act, the Division and the Commission shall have "concurrent jurisdiction…to the extent necessary for the Commission to perform its duties as required by law."

2. Pursuant to NMSA 1978, Section 70-2-12(B)(7) (15) and (21) of the Act, the Commission, in exercising its aforementioned concurrent jurisdiction, shall:

> (7) to require wells to be drilled, operated and produced in such manner as to prevent injury to neighboring leases or properties…
>
> (15) to regulate the disposition, handling, transport, recycling, treatment and disposal of produced water during, or for reuse in, the exploration, drilling, production, treatment or refinement of oil or gas, including disposal by injection pursuant to authority delegated under the federal Safe Drinking Water Act, in a manner that protects public health, the environment and fresh water resources…
>
> (21) to regulate the disposition of nondomestic wastes resulting from the exploration, development, production or storage of crude oil or natural gas to protect public health and the environment.

3. Pursuant to 19.15.29.8.A NMAC, releases arising from oil and gas operations are prohibited.

4. Pursuant to 19.15.29.8.B NMAC, the operator responsible for a release shall remediate it.

5. Pursuant to 19.15.29.8.C NMAC, such remediation requires the following immediate actions:

> (1) **Source elimination and site security.** The responsible party must take appropriate measures to stop the source of the release and limit access to the site as necessary to protect human health and the environment.
> (2) **Containment.** Once the site is secure, the responsible party must contain the materials released by construction of berms or dikes, the use of absorbent pads or other containment actions to limit the area affected by the release and prevent potential fresh water contaminants from migrating to watercourses or areas that could pose a threat to public health and

EXHIBIT A-5

environment. The responsible party must monitor the containment to ensure that it is effectively containing the material and not being degraded by weather or onsite activity.

(3) **Site stabilization.** After containment, the responsible party must recover any free liquids and recoverable materials that can be physically removed from the surface within the containment area. The responsible party must deliver material removed from the site to a division-approved facility.

(4) **Remediation.** The responsible party may commence remediation immediately.

6. Pursuant to 19.15.29.8 NMAC, Apache is the operator responsible for the release and the responsible party.

7. Pursuant to 19.15.29.11.C NMAC:

> If the division determines that more information is needed to understand the character of the release and its potential impact on fresh water, public health and the environment, the division may request the responsible party submit additional information. Should the division request additional information, it must do so in writing to the responsible party within 30 days from receipt of the characterization report or remediation plan with what specific information the division is requesting and reasons why the additional information is needed. The responsible party has 14 days to respond to a written request for additional information. If the responsible party disagrees with the request for additional information, it may consult with the division, or file an application for hearing pursuant to 19.15.4 NMAC within 30 days of the issuance of the request for additional information.

8. To the extent that the Division requested more information from Apache after Apache repeatedly updated its information regarding chloride and TDS exceedances, the Division did so pursuant to 19.15.29.11.C NMAC.

9. The Final COA attached as **Exhibit A** is reasonably necessary to satisfy the Commission's obligations pursuant to Section 70-2-12(B), subparagraphs (7) (15) and (21) of the Act, as cited above, and to facilitate compliance with the above-cited rules at 19.15.29 NMAC.

10. This order does not preclude further amendments to the Permit in

EXHIBIT A-5

accordance with the Act.

C. ORDER:

1. The Final COA attached as **Exhibit A** hereto shall be enforceable by the Division pursuant to 19.15.5.11 NMAC.

2. Pursuant to Section 70-2-25 of the Act, within twenty (20) days after entry of this order, a party of record adversely affected may file with the Commission an application for rehearing in respect of any matter determined by the order or decision, setting forth the respect in which the order or decision is believed to be erroneous. The commission shall grant or refuse the application in whole or in part within ten days after the application is filed, and failure to act on the application within that period shall be deemed a refusal and final disposition of that application. In the event the rehearing is granted, the commission may enter a new order or decision after rehearing as may be required under the circumstances. A party of record to the rehearing proceeding dissatisfied with the disposition of the application for rehearing may appeal to the district court pursuant to the provisions of Section 39-3-1.1 NMSA 1978.

SO ORDERED.

Gerasimos Razatos, Acting Chairman
New Mexico Oil Conservation Commission

EXHIBIT A-5

EXHIBIT A – FINAL CONDITIONS OF APPROVAL

As part of Permit API 30-025-06556, Apache Corporation must commence the following within ninety (90) days of the date of this Order. The coordinates for each additional monitoring well are included in conditions 1. (a through n).

1a. TMW-30 shall be installed approximately 430 feet east of the TMW-28 well proposal, and 50 feet south. Better defining background concentrations. (32.482591, -103.120003)

1b. TMW-31 shall be installed approximately 200 feet east of the Windmill.

1c. TMW-32 shall be installed approximately 275 feet east of TMW-12. Reduces distance between adjacent wells for more precise characterization. (32.481354, -103.119876)

1d. TMW-33 shall be installed approximately 415 feet southwest of TMW-22. Reduces the distance between TMW-21 and TMW-13 for more precise characterization. (32.480643, - 103.118728)

1e. TMW-34 shall be installed approximately 350 feet west of TMW-14. Achieves more characterization near TMW-17 which conveys a high chloride level. (32.479492, - 103.120080)

1f. TMW-35 shall be installed approximately 190 feet northeast of TMW-15 Addresses more necessary characterization near TMW-17 (32.479341, - 103.119302)

1g. TMW-36 shall be installed approximately 175 feet southwest of TMW-17. Addresses need for more characterization near TMW-17 (32.478749, -103.120871)

1h. TMW-37 shall be installed approximately 275 feet southeast of TMW-17. Addresses need for more characterization near TMW-17. (32.478577, -103.119850)

1i. TMW-38 shall be installed approximately 300 feet northwest of proposed TMW-26.
More characterization and assessment needed in the southeast region of the release area. (32.477683, -103.119429)

1j. TMW-40 shall be installed approximately 200 feet southeast of TMW-19. Addresses lack of characterization and assessment between MW-19 and MW-18

1k. TMW -41 shall be installed approximately 275 feet east of TMW-24. Addresses lack of characterization and assessment between TMW-24 and TMW-23 (32.476499, - 103.121560)

EXHIBIT A-5

1l. TMW-42 shall be installed approximately 220 feet east of TMW-23. Addresses lack of characterization and assessment between TMW-25 and TMW-26 (32.476456, - 103.119774)

1m. TMW-42 shall be installed approximately 75 feet NE of TMW-13. Addresses lack of characterization between TMW-13 and TMW-22. (32.4811185, -103.1189847)

2. The windmill well must be sampled and analyzed for barium in the next round of groundwater monitoring.
3. All additional monitoring wells must be logged by a qualified person and have soil sample analyses for TPH, chloride, and BTEX by EPA Methods 8260, EPA Method 300 and EPA Method 8015. Five (5) foot interval composite samples are acceptable.
4. Drilling for all wells is required to commence within ninety (90) days from this date of this Order.
5. Add an additional well located approximately halfway between the Windmill well and TMW-17.
6. Add an additional well located 200’ directly due west of TMW-19.
7. Include general chemistry water analysis on all samples including Cation/Anion results to understand TDS exceedances that are not chloride related.
8. In the next sampling event, sample all wells for the following 20.6.2.3103 NMAC constituents; (add all constituents with exceedances or which were not yet tested for)
    a. Barium, Cyanide, Boron, due to exceedances of their regulatory limits.
    b. Pentachlorophenol, atrazine, Ethylene dibromide (EDB) also known as 1,2-Dibromoethane as these constituents were either not previously analyzed or had reporting limits and/or minimum detection limits that are above the regulatory limits.
    c. Temperature and pH must be analyzed for in the field as they were reported out of hold time.
9. Apache shall complete and sample each additional well within thirty days of completion of drilling.
10. Apache must continue taking quarterly sampling and provide the results to the Division via the online permitting system. Results received by Apache must be submitted within 30 days, even if the report is still pending or waiting on additional results.
11. Apache shall include all field notes and calibration logs for field equipment used during groundwater monitoring events in all subsequent reports submitted through the OCD permitting system.

EXHIBIT A-6

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION COMMISSION

IN THE MATTER OF
APPLICATION OF APACHE CORPORATION
FOR AN ADJUDICATORY HEARING TO
CONTEST THE DIVISION'S CONDITIONS OF
APPROVAL ON APACHE CORPORATION'S
SCOPE OF WORK FOR ADDITIONAL
INVESTIGATION, LEA COUNTY, NEW MEXICO

OCC CASE NO. 24912
ORDER NO. R-23728-A

ORDER GRANTING APACHE CORPORATION AND THE OIL CONSERVATION DIVISION'S JOINT MOTION TO AMEND ORDER NO. R-23728

This matter is before the Commission on OCC CASE NO. 24912 on APACHE CORPORATION and the OIL CONSERVATION DIVISION'S JOINT MOTION to amend ORDER NO. R-23728. Having considered the request, and being fully appraised in the matter,
IT IS HEREBY ORDERED as follows:

1. On April 17, 2025, APACHE CORPORATION and the OIL CONSERVATION DIVISION filed a JOINT MOTION to amend ORDER NO. R-23728.
2. On April 21, 2025, APACHE CORPORATION and the OIL CONSERVATION DIVISION appeared at the OCC meeting and provided an oral explanation for the Motion.
3. The OCC voted unanimously to grant the Motion.
4. Therefore, good cause does exist to grant the Motion and the Motion therefore is GRANTED.

IT IS SO ORDERED.

DATED: 06/05/2025

Gerasimos Razatos, Acting Chairman
New Mexico Oil Conservation Commission

EXHIBIT A

EXHIBIT A-6

Exhibit A: Modified Final Conditions of Approval

1. As part of Permit API 30-025-06556, Apache Corporation must commence the following within ninety (90) days of the date of the Oil Conservation Commission's Order granting the Joint Motion to Amend Order No R-23728. The coordinates for each monitoring well are included below. Groundwater Monitoring Wells:

    a. TMW-27 (32.479989°, -103.120675°) will serve to confirm the chloride plume is continuous between the source (near TMW-7) and TMW-17, which has shown elevated chlorides in recent sampling.

    b. TMW-28 (32.482492°, -103.121341°) will provide upgradient delineation. This well will be located approximately 750 feet upgradient of the source.

    c. TMW-30 (32.477327°, -103.120154°) will be located approximately 200 feet southeast of TMW-18 to provide information on stratigraphy and groundwater chemistry in the space between current TMW-18, TMW-23, and proposed New 4. This is the location identified as TMW-39 from the original OCD Conditions of Approval.

    d. TMW-31 (32.479032°, -103.121434°) will be installed approximately 200 feet east of the Windmill. This well is also requested in condition 5 of the OCD final order.

    e. TMW-33 (32.480650, - 103.118951) will be installed approximately 415 feet southwest of TMW-22. Reduces the distance between TMW-21 and TMW-13 for more precise characterization.

    f. TMW-34 (32.479492, - 103.120080) will be installed approximately 350 feet west of TMW-14. Achieves more characterization near TMW-17.

    g. TMW-36 (32.478749, -103.120871) will be installed approximately 175 feet southwest of TMW-17. Addresses need for more characterization near TMW-17

    h. TMW-37 (32.478577, -103.119850) will be installed approximately 275 feet southeast of TMW-17. Provides additional characterization near TMW-17.

    i. TMW-40 (32.477265°, -103.121711°) will be installed approximately 200 feet southeast of TMW-19. Addresses lack of characterization and assessment between TMW-19 and TMW-18

    j. New 1 (32.482505°, -103.119588°) This is a modification (approximately 100 feet east) of the OCD final order well TMW-30. Better defines background concentrations.

    k. New 2 (32.481600°, -103.119705°) This is a modification (approximately 100 feet northeast) of the OCD final order well TMW-32. Reduces distance between adjacent wells for more precise characterization.

    l. New 3 (32.477701°, -103.123321°) This is a modification (approximately 150 feet west) of the well requested in Condition 6 of the OCD final order well. Provides delineation west of TMW-19.

m. New 4 (32.477662°, -103.118673°) This is a modification (approximately 250 feet east) of the OCD final order well TMW-38. Better defines background concentrations. Provides characterization in the southeast of the site.

n. New 5 (32.475958°, -103.121591°) This is a modification (approximately 200 feet south) of the OCD final order well TMW-41. Provides downgradient characterization at the southern extent of the release area.

o. New 6 (32.475825°, -103.119373°) This is a modification (approximately 200 feet southeast) of the OCD final order well TMW-42 (condition 1l). Provides downgradient characterization at the southeastern extent of the release area.

2. Soil borings:

a. SB-1 (32.481164°, -103.118979°) This boring is proposed in a location approximately 180 feet northeast of existing monitoring well TMW-13. The boring is located centered on an area with restricted vegetation growth suspected of being a potential source of contaminants leaching to groundwater.

b. SB-2 (32.477502°, -103.120147°) This boring is proposed approximately 230 feet southeast of existing TMW-18. The boring is located centered on an area with restricted vegetation growth suspected of being a potential source of contaminants leaching to groundwater.

3. Sampling and monitoring:

a. The windmill well must be sampled and analyzed for barium in the next round of groundwater monitoring.

b. All additional monitoring wells must be logged by a qualified person and have soil sample analyses for TPH, chloride, and BTEX by EPA Methods 8260, EPA Method 300 and EPA Method 8015. Five (5) foot interval composite samples are acceptable.

c. Drilling for all wells is required to commence within ninety (90) days from the date of approval of the Order approving the Modified Conditions of Approval.

d. Include general chemistry water analysis on all samples including Cation/Anion results to understand TDS exceedances that are not chloride related.

e. In the next sampling event, sample all wells for the following 20.6.2.3103 NMAC constituents: (add all constituents with exceedances or which were not yet tested for)

i. Barium, Cyanide, Boron, due to exceedances of their regulatory limits.

ii. Pentachlorophenol, atrazine, Ethylene dibromide (EDB) also known as 1,2-Dibromoethane as these constituents were either not previously analyzed or had reporting limits and/or minimum detection limits that are above the regulatory limits.

iii. Temperature and pH must be analyzed for in the field as they were reported out of hold time.

f. Apache shall complete and sample each additional well within thirty days of completion of drilling.

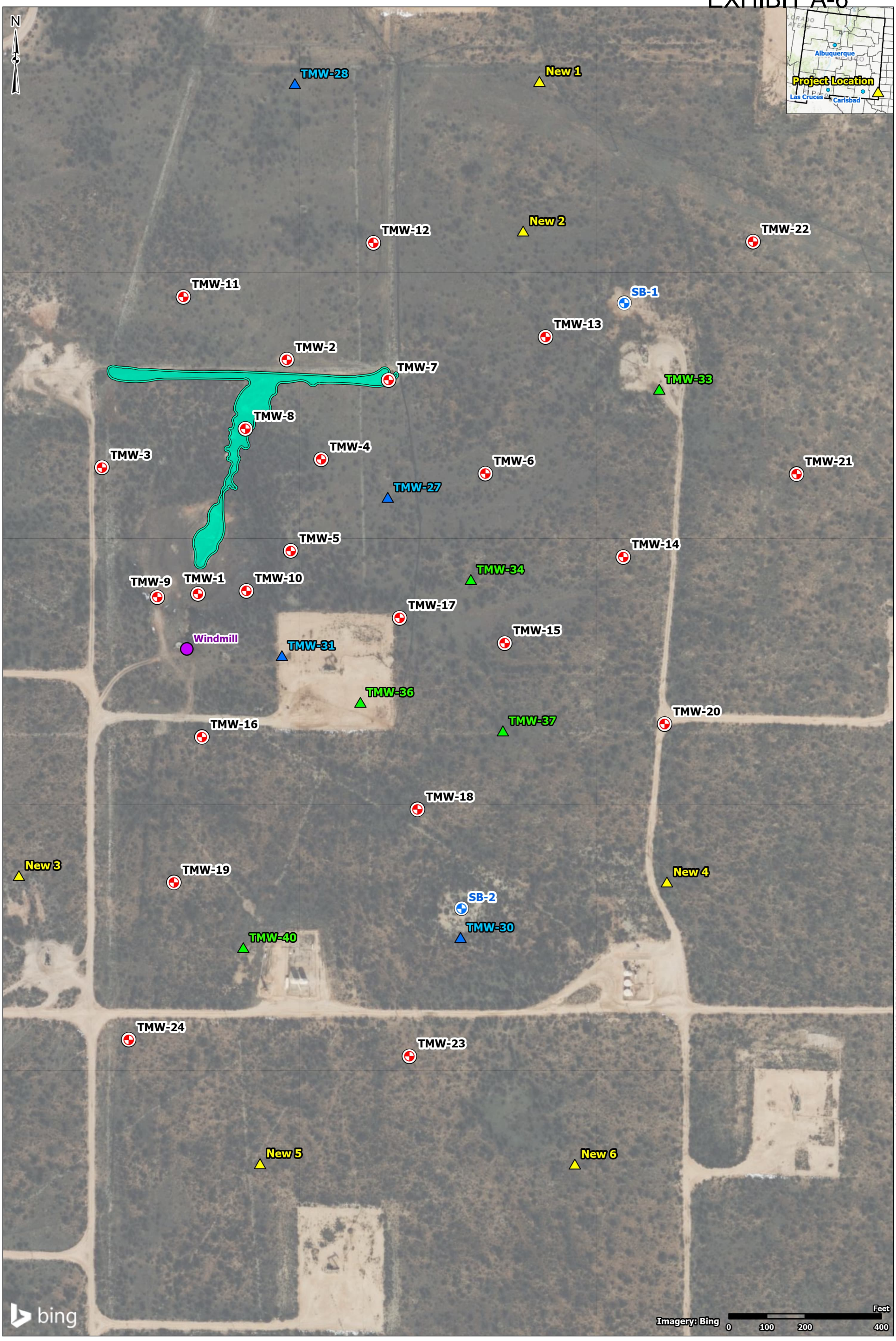
g. Apache must continue taking quarterly sampling and provide the results to the Division via the online permitting system. Results received by Apache must be submitted (via email) within 30 days, even if the report is still pending or waiting on additional results.

h. Apache shall include all field notes and calibration logs for field equipment used during groundwater monitoring events in all subsequent reports submitted through the OCD permitting system.

4. The Division may administratively extend deadlines related to drilling or sampling activities specified in this Order and may approve minor adjustments to the specified well locations for good cause shown.

Exhibit B

EXHIBIT A-6



- Inferred Release
- Soil Boring
- Existing Monitoring Well
- Windmill
- Newly Proposed Wells
- OCD Final Order Wells
- Original Apache Proposed Wells

Project No.:	KH247030
Date:	Apr 15 2025
Drawn By:	JWL
Reviewed By:	JRG

Terracon
5847 50th St
Lubbock, TX
PH. 806-300-0140 terracon.com

Proposed Monitoring Wells

EBDU 37
32.4807053, -103.123085
Apache Corporation
Eunice, Lea County, New Mexico

Exhibit

1.0

STATE OF NEW MEXICO
ENERGY, MINERAL, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

_____

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:
Case No. 24912

_____

HEARING

DATE: Thursday, January 16, 2025
TIME: 9 a.m.
BEFORE: Gerasimos Razatos, Chair, State of New Mexico Oil Conservation Commission
LOCATION: Pecos Hall, Wendell Chino Building
1220 South Saint Francis Drive, First Floor
Santa Fe, NM 87505
REPORTED BY: James Cogswell
JOB NO.: 7106486

A P P E A R A N C E S

ON BEHALF OF OIL CONSERVATION COMMISSION:

DANIEL R. RUBIN, ESQUIRE
New Mexico Department of Justice
408 Galisteo Street
Santa Fe, NM 87501
drubin@nmdoj.gov
(505) 537-4477

ON BEHALF OF OIL CONSERVATION DIVISION:

CHRISTOPHER L. MOANDER, ESQUIRE
JESSE K. TREMAINE, ESQUIRE (by videoconference)
State of New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, NM 87505
chris.moander@emnrd.nm.gov
jessek.tremaine@emnrd.nm.gov
(505) 476-3200
(505) 231-9312

A P P E A R A N C E S (Cont'd)

ON BEHALF OF GOODNIGHT MIDSTREAM:

ADAM G. RANKIN, ESQUIRE
Holland & Hart, LLP
110 North Guadalupe Street, Suite 1
Santa Fe, NM 87501
agrankin@hollandhart.com
(505) 988-4421

ON BEHALF OF EMPIRE NEW MEXICO:

DANA S. HARDY, ESQUIRE
Hinkle Shanor, LLP
218 Montezuma Avenue
Santa Fe, NM 87504
dhardy@hinklelawfirm.com
(505) 982-4554

SHARON T. SHAHEEN, ESQUIRE
Spencer Fane
325 Paseo De Peralta
Santa Fe, NM 87501
sshaheen@spencerfane.com
(505) 986-2678

A P P E A R A N C E S (Cont'd)

ERNEST L. PADILLA, ESQUIRE
Padilla Law Firm, P.A.
P.O. Box 2523
Santa Fe, NM 87504
padillalawnm@outlook.com
(505) 988-7577

ON BEHALF OF PILOT WATER SOLUTIONS, LLC:

RYAN LEE MCKEE, ESQUIRE (by videoconference)
Beatty & Wozniak, P.C.
1675 Broadway, Suite 600
Denver, CO 80202
rmckee@bwenergylaw.com
(303) 407-4449

A P P E A R A N C E S (Cont'd)

ON BEHALF OF APACHE CORPORATION:

DALVA L. MOELLENBERG, ESQUIRE
SAMANTHA H. CATALANO, ESQUIRE
Gallagher & Kennedy, P.A.
1239 Paseo De Peralta
Santa Fe, NM 87501
dlm@gknet.com
samantha.catalano@gknet.com
(505) 989-7278
(505) 989-7388

ALSO PRESENT:

Sheila Apodaca, Law Clerk, State of New Mexico
Oil Conservation Division

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NO.	DESCRIPTION	ID/EVD
A	Larry Bruce Baker Resume	162/162
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A-2	Remediation Plan	161/162
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C-2	Scope of Work	228/229
C-3	Work Plan and Quarterly Monitoring Report, 05/08/24	228/229
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NO.	DESCRIPTION	ID/EVD
C-5	Existing and Proposed Monitoring Well Map, 2024	228/229

P R O C E E D I N G S

MR. RAZATOS: Good morning to everybody. Happy January the 16th. Happy New Year to everyone. Good to see everyone. We're starting our Oil Conservation Commission meeting for the month of January. I am Gerasimos Razatos. I go by Jerry. I am the acting director of the OCD and also commission chair.

So we can start our meeting, we'll start off with a roll call. As I stated, I'm Gerasimos Razatos. I am the chair for the OCC right at the moment, and we'll go with the commissioners.

DR. AMPOMAH: I'm Dr. William Ampomah, designee of the energy secretary. Thank you.

MR. BLOOM: Hi. Good morning, everyone. Greg Bloom. I'm the commissioner here for the New Mexico State Land Office, and apologies; I'm at home today. I'm a little under the weather.

MR. RAZATOS: Hope you get to feeling better, Commissioner Bloom, but welcome. Good to have you with us.

Excellent. The first thing that we need to do is approve our agenda for the January 16, 2025, meeting. May I get a motion for approval of the agenda?

MR. BLOOM: I so move.
DR. AMPOMAH: I second.
MR. RAZATOS: Excellent. All in favor, please say aye.
DR. AMPOMAH: Aye.
MR. BLOOM: Aye.
MR. RAZATOS: I say aye as well. No nays, so we'll say that the agenda is approved. Next we need to do the approval of the December 12, 2024, meeting minutes. May I get a motion to approve?
MR. BLOOM: I so move.
DR. AMPOMAH: I second.
MR. RAZATOS: Excellent. And all in favor?
DR. AMPOMAH: Aye.
MR. BLOOM: Aye.
MR. RAZATOS: Aye. Excellent. So our agenda is -- I mean the meeting minutes are approved. Moving on to our fourth point here is our pending cases. We have the consolidated cases by Goodnight Midstream and Empire New Mexico.
I do know that Mr. Rubin wanted to start off this particular -- well, actually, let me just call them out. Case numbers 24123, 23614 through 17, and also case numbers 23775 and 24018 through

24027. This is going to be pre-hearing issues that we have. And I know, Mr. Rubin, you wanted to start the conversation.

MR. RUBIN: Thank you, Mr. Chair and Members of the Commission. So what has arisen recently in anticipation of the adjudicatory hearing in February, the context of the issue of whether the Commission would personally hear this or let the hearing officer that was appointed hear it directly.

Several of the parties raised the issue of the authority of the Commission to appoint a hearing examiner or to having a hearing examiner hear this case in some respects. And so in an effort to avoid, obviously, any issues of impropriety on that point, you did receive an email from me on this, and the question is what, if anything, can a hearing examiner do in these adjudicatory matters?

There is nothing in statute on this. But rather than try to resolve the authority issue of whether there's inherent authority, whether a rule would suffice, what the rules mean, I would like to hear -- I understand from the parties that they would like to speak briefly on this as well, and we will try.

What I'm hoping is that we can quickly

achieve some sort of consensus on what would be an appropriate role for the hearing examiner as I -- there's nothing that would, I think, preclude by stipulation us proceeding on such a matter as it's not a -- well, other than matters of fair trial in a criminal case or perhaps subject matter jurisdiction, these are things that we could perhaps stipulate to with the parties.

So I believe I heard Ms. Shaheen and Ms. Hardy and Mr. Rankin and Mr. Padilla are all here. And representing the Division -- will that be you, Mr. Moander, or is just Mr. Tremaine representing you on this?

MR. MOANDER: I'll be representing the Division.

MR. RUBIN: Okay. So --

MR. MOANDER: Thank you.

MR. RUBIN: So I do apologize; I need to step out by 10 minutes to 10, so if we could be succinct on this, I'd appreciate it. So I believe Mr. Rankin wanted to speak.

MR. RAZATOS: Excellent. I just want to make sure everybody's here for these particular cases, so let's just do a roll call. I'll start here on my right and we'll go down the table.

MR. RANKIN: Yeah. Adam Rankin appearing on behalf of Goodnight Midstream in these cases with the Holland & Hart law firm.

MR. RAZATOS: Excellent.

MR. MOANDER: Chris Moander appearing on behalf of the New Mexico Oil Conservation Division.

MR. RAZATOS: Excellent.

Mr. Padilla, can I get you to get in to a microphone, please? Thanks.

MR. PADILLA: Ernest Padilla appearing for Empire New Mexico.

MR. RAZATOS: Excellent. Thank you, Mr. Padilla.

MS. SHAHEEN: Sharon Shaheen also appearing on behalf of Empire New Mexico.

MR. RAZATOS: Ms. Shaheen.

MS. HARDY: Dana Hardy with Hinkle Shanor on behalf of Empire as well.

MR. RAZATOS: Excellent. Thank you. So I know as Mr. -- Adam, I forgot your last name, but I apologize. I know you wanted to say -- everybody has something to say, so let's start with you, Mr. Rankin.

MR. RANKIN: So thank you, Chair Razatos. Good morning.

May it please the Commission, I raised this issue based on an email from Mr. Harwood that led me to believe the intent was for Mr. Harwood to hear the whole merits of the case. I conferred with -- that was in early December. I conferred with counsel at the beginning of this year about it, and we had a meeting last week and discussed it.

We reached out to Mr. Rubin to determine what the intent was. All to say that on review of the statutes and the regulations, my belief and my preference is that the statute requires the Commission to hear the merits; that there's no provision on the statutes for the Commission to delegate or appoint a hearing examiner for a hearing on the merits for Commission matters, including, especially, de novo cases that the Commission must hear.

That said, the statute is silent on whether a pre-hearing or procedural matters can be assigned to a hearing examiner. And the regulations, in my opinion, do address that expressly and do provide that the director may appoint a hearing examiner for purposes of making rulings on pre-hearing motions.

So I don't believe that there's any

issue with that or with the appointment of Mr. Harwood to hear pre-hearing matters. So with that, we did confer; I did send an email to all counsel and Mr. Rubin kind of laying out my interpretation of the statute and regulations.

And it may have been a tempest in a teapot, but I want to make sure that -- at least for my purposes and to ensure that there's no appellate issue going forward -- that we have a clear understanding that the commission's authority is and jurisdiction requires it to be present for the merits.

MR. RUBIN: And is that what the other folks here would agree to?

MR. MOANDER: Speaking, Mr. Rubin, for OCD, I think that's right because I had not actually looked at this narrow of an issue before in front of the Commission; I was actually a little surprised at what the rules reflected.

But I think that's correct, and OCD's overarching concern here is the procedural appellate issue because, frankly, OCD anticipates no matter what happens in this case, this matter will be elevated to the appellate level. And so the fewer issues that could be dealt with in that appeal, the better.

MR. RUBIN: Thank you. Ms. Hardy?

MS. HARDY: Thank you. On behalf of Empire, we have concerns as well regarding the appellate issue. We don't necessarily agree with all of the analysis provided by Mr. Rankin, but it does create an issue for appeal, and none of us want to be back here doing this over again, so we agree that the Commission should be present for a hearing.

And I think that was what was contemplated when the matter was scheduled based on the April hearing transcript. There was discussion of the hearing dates based on the commissioners' availability, and so it was our understanding that the commissioners would be present for the hearing.

And with respect to pretrial motions and procedural matters, I agree with Mr. Rankin.

MR. RUBIN: Thank you.

So, Mr. Chair, Members of the Commission, it is my advice, and I think it's the parties' wishes, that the Commission sit and hear this matter. I know it's going to be at least four days, and by the Commission we would need a quorum to ensure that the Commission hears this case as opposed to having a hearing officer hear the case.

And I don't think we need to -- based upon the stipulations of the parties that there was

no -- I think the five pre-hearing orders signed by Mr. Harwood as hearing officer are perfectly in order and are appropriate. I don't -- we don't need to ratify that at this point, based on the positions of the parties.

What remains to be hashed out, I believe, is the role of the hearing officer at -- with respect to post-hearing. Do the parties think that a recommendation from the hearing officer is something they are copacetic with provided that the hearing officer report was made available to the parties? What is the position on that?

MR. MOANDER: Mr. Rubin, in terms of OCD, If the Commission is going to be present -- intends to be present and preside over the hearing, I don't see much value in a hearing officer report since all of the direct evidence will have been taken by the Commission. It seems redundant and I don't see the practical use of it in proceedings.

MR. RUBIN: Okay. Any other input?

MR. RANKIN: Mr. Rubin, I appreciate the question, and I likewise have concerns about the timing. As the Commission may be aware, Empire has moved the District Court -- there's a parallel litigation in District Court.

Empire has moved the District Court through an emergency motion to lift the stay that had been in place so as to enable the Court to proceed without litigation based on representations by Empire counsel. Their intent is to push for a quick trial date in that matter.

And the District Court has told us -- parties -- that any factual determinations made by the Commission will be given strong consideration if not preclusive effect at the District Court.

For that reason, I think we are very -- I think both parties are very interested in having a quick order that lays out the findings of the Commission. And my concern about a recommendation from a hearing officer is that it would delay a potential final order from the Commission.

MR. RUBIN: Thank you.

MR. RANKIN: Given the sensitivities around timing and so forth -- also with the active engagement of the Commission members asking questions or probing witnesses on cross-examination -- I think -- I don't know that a non-technical examiner would have much to contribute in terms of recommendations for this matter that is highly technical.

So my thought is that it would not serve much of a purpose, I think, to have a hearing examiner make a formal recommendation to the Commission.

MR. RUBIN: Okay. Thank you. Any other parties on that?

MS. HARDY: I tend to agree and I would say that if there was going to be a recommendation by the hearing officer, that I think the parties would need opportunities to respond.

MR. RUBIN: Okay.

MS. HARDY: Which would take additional time, of course.

MR. RUBIN: Okay. Thank you.

So Mr. Chair, Members of the Commission, I think in an abundance of caution, other than having Mr. Harwood run the hearing with the presence of at least a quorum of the Commission to at least tacitly approve any rulings he makes as we go, it seems that, based on the wishes of the parties, but also because I have a concern that if a hearing officer makes a recommendation it would exceed the statutory authority of this commission to rely upon that recommendation, there is a concern.

And rather than resolve that legal

issue, my recommendation is that at the conclusion of the evidentiary portion -- of course, the Commission -- and whether the Commission asks questions -- the Commission will then deliberate.

If the Commission requires some recommendations and some advice from counsel -- me -- before deliberating, that's something I'm prepared to handle. And I would -- of course, anything I provide to the Commission in the terms of advice on the law, assessing the facts, at least summarizing the facts, that would be privileged.

And so I would be able to provide not a hearing officer's report, but I would be able to provide to you my advice in a privileged manner that would sort of take the place of something from Mr. Harwood. I would like to have -- so with that, any questions from the Commission on that?

MR. RAZATOS: I -- I know I have questions, but Commissioner Bloom, we'll start with you if you have any questions.

MR. BLOOM: Thank you, Mr. Chair.

No questions regarding these sort of procedural matters. I -- I do have a question about the case in general, though, which I will wait and ask later. Thank you.

MR. RAZATOS: Okay. Thank you.
Commissioner Ampomah?
DR. AMPOMAH: Yeah, so quick question. So the pre-hearing statements will be on February 20th; right?
MR. RUBIN: I believe that's correct. I don't have the order in front of me, but there is a -- the first day is the opening statements -- pre-hearing statements. Is that correct, Ms. Hardy?
MS. HARDY: That's correct. Opening statements and pending motions, I believe, would be addressed.
MR. RUBIN: Okay.
MR. RAZATOS: So -- and just to clarify, that is our set date for the hearing. I mean, that's a normal commission meeting -- hearing that particular day, and then we're picking it up again the following week; correct? Is that how I've understood it?
MS. HARDY: Correct. For the presentation of evidence.
DR. AMPOMAH: Okay, so do we anticipate it getting into Friday because I need to make arrangements for travel, so --
MR. RAZATOS: The heads are nodding

yes, so make arrangements.

MR. RUBIN: Yes. Commissioner Ampomah, yes. I think the constraint here is the Open Meetings Act, which requires you to be here in person unless it's difficult or impossible to attend. I think we would need -- for the Commission to safely be saying that they're hearing this, we would need a quorum at any given moment. So if we -- two out of three?

Yes, sir.

MR. MOANDER: Mr. Rubin, as a point of order, the pre-hearing statements are due on February 6th.

DR. AMPOMAH: Sixth, yeah.

MR. RUBIN: Okay. And of course, Mr. Harwood has done an excellent job up now handling pre-hearing matters and procedural matters. We'll make recommendations as to pre-hearing motions on that date, but we will need to be here at that point.

DR. AMPOMAH: So looking at the technical nature of the case, when are we going to receive the documentation for us to review before the pre-hearing and then even the -- the case itself?

MR. RUBIN: Commissioner Ampomah, the way it will work is the parties will present exhibits, and the technical evidence in those exhibits will be

submitted for admission. We cannot consider anything until the hearing starts, and so I'm hoping that, like with any case, the parties will stipulate at least to the admissibility of everything as opposed to fighting over what comes in and what doesn't.

But what comes in is part of what they will, hopefully, resolve right up front for the Commission's benefit. Fair to say? Okay.

MS. HARDY: Yes. I will say that we have filed direct testimony already --

MR. RUBIN: Oh, yes.

MS. HARDY: -- and exhibits under the procedural order, and that we will file rebuttal testimony and exhibits on February 6th.

MR. RUBIN: Okay. Thank you.

MR. RANKIN: May I make a point, Mr. Rubin? And I have not raised this with any of the other counsel, but just for the awareness of the Commission; as it stands today, we have a total of 21 witnesses who are filing all pre-written, pre-filed testimony.

Empire has nine that they have already filed; we have seven that have already been filed; and OCD has two. Empire has two additional rebuttal witnesses, and Goodnight Midstream has one additional

rebutment -- rebuttal witness. So there're going to be a total of 21 witnesses filing both direct and rebuttal testimony. As Ms. Hardy mentioned, that's already of record.

I understand that perhaps the Commission members may be precluded from reviewing this testimony at this point; I don't know. But my thought -- and I don't know how counsel for Empire feels or the Division feels -- but my thought would be I don't see why they couldn't start reviewing it because it's a lot of material.

And that way, at the time of the hearing, they will have -- it's a lot of material to absorb and understand and reflect on. And if they were able to start reviewing that testimony in advance, I think it would be helpful for everybody and may make the hearing go more smoothly if that material had been reviewed, and well in advance of the start of the evidentiary hearing on the 24th.

MR. RUBIN: Mr. Rankin, have the parties stipulated to the pre-filing of everything or -- I was under a vague impression that there was some motions to exclude some of what's been pre-filed.

MR. RANKIN: Not yet. There is a deadline for motions in limine. I have not conferred

with counsel about that. We can talk about it. That being said, I don't know that it would necessarily impinge on the ability to review what's been filed.

And maybe after this meeting, Mr. Examiner, counsel can confer and maybe stipulate that we would agree that it would be appropriate for the Commission members to begin reviewing the testimony because I do think it would be beneficial to everybody.

MR. RUBIN: Okay. Okay. So, Commissioners, I do believe that it would be an abundance of caution not to review what has been pre-filed until we have resolved any objections, and that will be prior to the hearing.

I'm looking at the pre-hearing scheduling order, and discovery motions shall be filed by January 9th, responses due January 20th, replies due 27th, and then ruling shall be made thereafter. Are there any objections to the parties -- to Mr. Harwood ruling on those motions? If not, we need to wait for the hearing.

MR. MOANDER: Mr. Rubin, do you mean ruling without oral argument?

MR. RUBIN: Right. It seems to me that we should allow -- well, that we should -- certainly,

whatever has not been objected to, the Commission can then consider. But we will -- if anything that has been objected to, they should hold off on considering until those -- until whatever is being contested is resolved as a motion in limine.

And in fact, it may be that Mr. Harwood should not rule on those. That -- as it is dispositive, in a sense, perhaps the best course is anything that is not contested; the Commission can then consider and get at -- a leg up on -- prior to the hearing.

But if there are contested motions in limine, then we will need to resolve those and should hold off on considering anything that is subject to a motion until it's been resolved.

MR. RAZATOS: So, Ms. Shaheen, you have a concern?

MS. SHAHEEN: Thank you, Mr. Chair, Commissioners. We do have a concern. We agree with Mr. Rankin that there is a good -- a great amount of technical information that both parties will be presenting. We don't believe that there's an issue with the commissioners reviewing that ahead of time.

If any information or evidence is excluded, then that can be taken into consideration

during the deliberation. But what I suggest is that the parties confer and perhaps present a stipulation to you in this regard if that would be acceptable with the other parties and the commission.

MR. RAZATOS: And I hate to interrupt. That is -- was going to be my recommendation for this.

MR. RANKIN: Okay.

MR. RAZATOS: If we could just get the parties to agree on what they want the Commission to see and not see, but as soon as possible. I know some of these things can get a little dragged out and back and forth and back and forth, but we are on a time crunch as well.

And so I share Commissioner Ampomah's concern on having enough time to be able to review some of this information, so could we possibly set a date on when you could give us an answer on this? I think if that's something that we can get so we can solidify it, and then we can start on -- start on our end.

MR. RANKIN: I hope that we can give you an answer tomorrow if not today.

MS. SHAHEEN: We will do our best to give you an answer by tomorrow.

MR. RAZATOS: Awesome. Okay, so

let's -- let's say if we could have an answer at least by before close of business tomorrow, so then we can have the ability to be able to start reviewing because I know that is a concern for myself. That was one of my questions that I had.

And Commissioner Ampomah has that; I'm sure Commissioner Bloom has the same concern on that end. So okay. So we'll wait for an answer from you all by -- before close of business tomorrow.

MS. SHAHEEN: Thank you.

MR. RAZATOS: Thank you.

MR. RUBIN: So if I may, Mr. Chairman and Members of the Commission; if I could have a motion reflecting the stipulation of the parties as to what we discussed today and the pre-hearing and post-hearing procedures we agreed to? And I could basically wrap this up in one big bow in a pre-hearing order by the Commission if we could have a motion to that effect.

MR. RAZATOS: And -- and here's just my question. And before we go into a motion, this was my second question. Just to get -- make sure from everybody here; we are going to -- we're stipulating on whatever Mr. Harwood has said thus far?

MR. RUBIN: Yes.

MR. RAZATOS: So all of his motions we're stipulating to, and everybody's agreeing to that, but then the rest of the hearing is going to be in front of the Commission; is that how I've understood it?

I'm going to start right down the line. Mr. Rankin?

MR. RANKIN: That's my understanding, Mr. Chair, is that the merits portion of the hearing would be heard and decided on by the Commission without recommendation from a hearing officer.

MR. RAZATOS: Okay.

Mr. Moander?

MR. MOANDER: And likewise from OCD, Mr. Chair.

MR. RAZATOS: Okay.

Mr. Padilla? Can you turn on your microphone, Mr. Padilla? It's okay.

MR. PADILLA: That's fine with me.

MR. RAZATOS: Okay.

Ms. Shaheen?

MS. SHAHEEN: I agree, and I would also note that we believe any motions to exclude evidence should also be decided by the Commission as well.

MR. RAZATOS: Fair enough. Yes.

MR. RUBIN: Okay.
MR. RAZATOS: And Ms. Hardy?
MS. HARDY: I agree. Thank you.
MR. RAZATOS: Okay. Excellent.
MR. RUBIN: I will reduce that to an order shortly.
MR. RAZATOS: Okay.
MR. RUBIN: If I can have a "so moved"?
MR. RAZATOS: I -- I move for that.
DR. AMPOMAH: I second.
MR. RUBIN: And can I have a roll call, please?
MR. BLOOM: I address Mr. Razatos. Aye.
DR. AMPOMAH: Approve?
MR. RAZATOS: Approved.
MR. BLOOM: Okay.
MR. RUBIN: Okay. Thank you very much. I appreciate the parties' concision on this issue. I apologize that I do need to tend to another hearing at ten. I will be back to assist and advise the Commission on the Apache hearing that is scheduled next, but I will be anticipate being back in about an hour and a half, and I apologize for that.
MR. RAZATOS: Thanks. Okay.

MR. RUBIN: Thank you.

MR. RAZATOS: Thank you, Mr. Rubin. Thank you; parties for this case, is there anything else?

Mr. Rankin?

MR. RANKIN: There may be just a few other sort of matters -- housekeeping matters.

And I know everyone's eager to get started on a very, probably, long merits hearing, but in terms of our proceeding in February, one item I think that the hearing officer had asked for the parties to confer on and that we have done so partially is to determine what the order of sequence or order of presentation should be for the evidentiary portion of the hearing. Who should go first and in what order?

I had proposed a sequence that I hadn't gotten a full endorsement of from the other parties, but essentially, my recommendation is that Empire would go first, that the Division would go second, and that Goodnight would go third. And that if Pilot or Al or Rice or Permian Line Services had any testimony, they could follow the Division; and then -- but nevertheless, Goodnight would go third in the sequence.

In my view, Empire is like a complainant. They're bringing an action to revoke injection authority that's preexisting that has been in place since the '60s or '50s, and so they're acting as, like, a plaintiff. And they should put on their case first and sets the stage for what their assertions are and contentions that we would need to respond to.

The Division is a good middleman. It sets the Division's testimony; sets the stage for the importance of the reliability of the Commission's regulations; the reliance of the parties on those regulations and orders. And then one of their witnesses also goes into the UIC's safe-drinking-water issues, which sets the stage for Goodnight's testimony.

So our view is just in terms of narrative, in terms of logic and sequencing, it makes sense to have Empire go first, the Division second, and Goodnight third.

So with that, I -- you know, I'm open to whatever else parties have to say, but my sense is that would be helpful to have that laid out so we know what the sequences are going to be.

MR. RAZATOS: Okay. We'll just go down

the line again.

Mr. Moander?

MR. MOANDER: OCD's position on Mr. Rankin's proposal is that it works; it makes sense. There's no concern about the order, frankly. It should make this hearing go smoothly.

But one thing I would want to note is that OCD is not anticipating that Rice or Pilot have any witnesses for some procedural reasons. And so this should really just be in OCD -- in my estimation, an issue of Goodnight, then -- or Empire, OCD, and then Goodnight. And that should be the sum total of testimony.

MR. RAZATOS: Okay.

Mr. Padilla?

Oh. Go ahead, Ms. Hardy -- sorry -- if you're responding for everybody.

MS. HARDY: Thank you. I can respond for Empire. We disagree that Empire is like a complainant because Goodnight has its own applications for injection that are part of this hearing and also has one application for a de novo appeal -- a de novo hearing -- before the Commission, so I don't think that characterization is accurate at all.

That being said, I think Empire is

willing to go first. I don't think it makes sense for OCD to go in the middle. I think we should have Empire, Goodnight, and then OCD. And I think that we would, of course, reserve the opportunity for rebuttal to bring back our witnesses after, particularly, Goodnight presents its evidence if we need to rebut items that are raised. So that's our position.

MR. RUBIN: And my understanding, then, is that Empire goes first, presents its case; then Goodnight goes second, presents its response as well as its case where it is the petitioner; and then OCD would then proceed third. and then Empire would then have an opportunity to rebut whatever Goodnight presents as petitioner; is that correct?

MR. RANKIN: Well, I guess -- I'm glad we're having this discussion. I guess, given the fact that everything is written -- rebuttal is being written -- so we have the written direct testimony, all the parties are now responding and preparing the rebuttal testimony. So the question is how do we present the rebuttal and the sequence?

What we've done sometimes at the Division level is to have one party go forth, either summarize their direct testimony and summarize their rebuttal all at once, and then they're crossed on both

their direct and rebuttal. That way, it's very efficient because you're crossing them on both their direct and rebuttal at one time.

Then there's an opportunity for redirect based on the cross, and then we move on to the next witness down the line.

My preference still -- and I guess it's up to the Division where they want to fall: before or after Goodnight -- my sense is, just based on the narrative and the issues, that it makes sense for OCD to go second because they're going to be establishing their concerns about the injection in San Andres, and having that on the record before Goodnight gets into their testimony makes a lot of sense, just narratively and logically.

But I guess the question is going to be whether we just present each witness's direct testimony first and then come back later and do rebuttal. That makes no sense to me where everybody has already seen and reviewed and analyzed the direct testimony and we already have the rebuttal on the record.

So my sense is that we should probably just go ahead and have each witness present and adopt their written testimony, both direct and rebuttal;

make them available for cross by all counsel and the Commission; and then be available for redirect. That way, we get through each witness in the most efficient manner and don't have to bring them back up.

Now, if a party feels that something was stated in cross or on redirect that requires a surrebuttal, then I think the parties can move the Commission to allow them to present another witness or additional testimony in surrebuttal. But I think that would be on a motion at the leave of the Commission.

MR. RAZATOS: Before we continue, Mr. McKee, on the platform you had your hand up. Were your concerns satiated or do you need something more?

MR. MCKEE: I just -- yes. My name is Ryan McKee. I am outside counsel for Pilot. I just wanted to raise a concern with OCD's statement regarding excluding Pilot from Mr. Rankin's proposed agenda.

We would like to reserve the right -- we're not for sure yet, but we would like to reserve the right to potentially prepare a witness and present a witness should we feel that's necessary to protect our rights.

MR. RUBIN: So, Mr. Chair and Members of the Commission, I think if you -- after hearing

from our folks here, do you want this pre-hearing order to reflect the order of presentation?

I think as to Mr. McKee's concerns, that could be raised at the appropriate time, but does the Commission -- I think it might be helpful to the attorneys know who goes first, second, and third. And, of course, if you learned anything from baseball, everyone wants last licks, but I do hear that there's some agreement that Empire, then the Division, and then Goodnight, so --

MS. HARDY: Mr. Rubin, I apologize. We do not agree to have Goodnight go last.

MR. RUBIN: Oh. I'm sorry. Yes.

MS. HARDY: Yeah. Yes. It's our position that it should be --

MR. RUBIN: I'm sorry.

MS. HARDY: -- Goodnight and then OCD.

MR. RUBIN: You're right. I misspoke.

MS. HARDY: Sorry.

MR. RUBIN: Thank you, Ms. Hardy.

MS. HARDY: And then with respect to Mr. McKee's concern, I would state that the pre-hearing order already provided deadlines for the filing of testimony and Pilot did not file any.

MR. RUBIN: Yes. That's why Mr. McKee

can raise those at the hearing.

MR. MOANDER: And just add OCD's two cents on this; OCD has to -- I am corralling two cats for this hearing, so this is something that OCD doesn't have a strong position on. If the Commission decides to set us in the middle, we will be prepared and present accordingly; or the OCC puts us at the end, very well.

So we don't -- but I think, ultimately, from OCD's perspective, Empire probably should go first, but that's the only strong position, if you could call it that, that OCD has.

MR. RUBIN: Okay.

MR. RAZATOS: So, Mr. Rubin, I think Commissioner Ampomah does have one question. I'd like to make sure we hear it.

DR. AMPOMAH: Yeah, so OCD more or less being in the middle, being the player having more like a uniform position, going second probably is not a good idea from my opinion. Maybe last or first because if they want to set the stage of the program -- let's say, how the UIC works -- to educate the Commission, they're probably first.

But having them going second probably -- from my opinion, it will be more like we

go on and more or less listen to the referee and probably use that some way, somehow, so maybe last would be my preference.

MR. RUBIN: There's going to be some triangulation between the three parties; I think. So if I could have a motion to amend the previous order to also reflect the order of Empire, Goodnight, and OCD in presentation?

MR. RAZATOS: Before I do that motion, Commissioner Bloom, did you have any comments or concerns?

MR. BLOOM: On this matter, no.

MR. RAZATOS: Okay. I actually also believe that it probably should be Empire, Goodnight, and then OCD, in that order. So I move to -- the motion that you mentioned about the order.

MR. RUBIN: Thank you. A second?

DR. AMPOMAH: I second.

MR. RAZATOS: Okay, so I think you have your motion there, Mr. Rubin. So it'll be going Empire, Goodnight, and then the OCD.

MR. RUBIN: Can I have a vote?

MR. RAZATOS: Please?

MR. RUBIN: Can I have just a quick roll-call vote on that?

MR. RAZATOS: Oh, I'm sorry. Aye.
DR. AMPOMAH: Approved.
MR. BLOOM: Approved.
MR. RUBIN: Thank you very much. So that motion passes. I will amend the pre-hearing order accordingly to reflect this agreement as well.
MR. RAZATOS: Excellent.
MR. RUBIN: So again, thank you very much. I need to step out. I will see you all in about an hour or so.
MR. RAZATOS: Yeah.
Was there something else, Ms. Hardy?
MS. HARDY: No. I was just going to say thank you.
MR. RAZATOS: Okay. Thank you all. We'll definitely see you next month. And we wait to hear from --
MR. BLOOM: Mr. Chair?
MR. RAZATOS: Yes, Commissioner Bloom.
MR. BLOOM: If you might, I had a question of the parties.
MR. RAZATOS: Okay.
MR. BLOOM: Some months back at a hearing, there was a question I wished that I would have asked. It didn't occur to me, however, until I

was driving away from Pecos Hall. And it was related to discovery, and so I wanted to check in and see how we're doing on that front.

But the question -- the matter that Mr. Rankin mentioned was that -- I believe he said that there in an OCD hearing, the then-president of Empire said that there was proof of a company making a play in the San Andres formation and -- but said that no documents to that effect had been turned over to Goodnight. And I believe Ms. Hardy said that those documents must have gone out the door with the CEO.

And it struck me upon reflection that, you know, in today's environment, any document going through a company would typically leave a trail of emails that could be had at; that other people from the company would have seen such a thing. A geologist -- there would have been recommendations -- engineers -- people of that sort.

So the fact that some document like that that was, you know, a major discovery for the company -- for Empire; that it just walked out the door with the CEO and all trace of it was gone after that just got me to thinking. So that's -- I'm wondering what's happened since then, and, you know, have these documents appeared?

MS. HARDY: I can respond if you would like.

MR. BLOOM: Please, Ms. Hardy.

MR. RAZATOS: Please do.

MS. HARDY: Sure. And, Commissioner Bloom, I believe what you were referencing is Goodnight had -- the former officer of the company or representative testified at hearing on the Piazza matter, which is now up for de novo review, and Goodnight had asked Empire to produce documents that that individual was talking about. And what we had actually said was "He's not here anymore."

We don't know exactly what documents he was talking about, but we are producing all the documents that we have, and we have done that and are still working through that with Goodnight. And it's been an exhaustive search and an exhaustive production, honestly. We've produced thousands of pages of documents.

And, of course, Empire acquired this unit from another operator, and so we've had to go back and try to find documents for many years prior, which -- we have provided what we have found. So I think -- I believe that's what you're asking about if I'm correct. And I think we've produced everything

that we have and are still working with Mr. Rankin on additional document requests.

MR. BLOOM: Okay. Thank you. That's helpful.

MS. HARDY: Yes.

MR. BLOOM: Mr. Rankin? Anything?

MR. RANKIN: Yeah. I'm sorry, Commissioner Bloom, I -- Ms. Hardy helped reframe the question for me -- the issue. But yeah. You know, we haven't seen very many emails from Empire. The discovery has been mostly focused -- or what they provided to us has been mostly some technical memoranda and data.

We had asked for emails, but given the venue here, it's been difficult to really get into, you know, discovery-level -- disputes at that level. But suffice it to say I think for technical issues, I believe we have what we need. We're continuing, as Ms. Hardy referenced, to work through discovery.

We did just get some additional discovery this week, I think, on some of the additional log analyses that we've been asking for. So I will raise a loud voice before the Commission if in the end I don't believe that I've gotten something that we needed to get. So far we've been able to --

MR. BLOOM: Oh. I lost the sound there from Pecos Hall.

MR. RANKIN: Sorry. Maybe I was mumbling. Commissioner Bloom, I think that my point is simply that to the extent I need to raise an issue with the Commission on discovery, I'll do so, and that point hasn't come yet.

MR. BLOOM: Okay. Thank you.

MR. RANKIN: Thanks.

MR. BLOOM: Anything else?

MR. RAZATOS: Commissioner Bloom, did that answer your question?

MR. BLOOM: It did. Thank you.

MR. RAZATOS: Anything else?

MR. BLOOM: No, thank you.

MR. RAZATOS: Commissioner Ampomah?

DR. AMPOMAH: No.

MR. RAZATOS: Okay. Now we'll end this one. Thank you all. Let's take a ten-minute break so then the next case can have a chance to set up, and then we'll begin again.

(Off the record.)

MR. RAZATOS: Excellent. We're back from our break. We're going to be continuing.

We're going to be moving on to, now,

our second pending case. It's case number 24912. It's the application of Apache Corporation for an adjudicatory hearing to consent -- to contest the Division's conditions of approval on Apache Corporation's scope of work for additional investigation in Lea County, New Mexico.

This is going to be an evidentiary hearing. Are the parties involved present?

MR. MOELLENBERG: Yes. Mr. Chair and Commissioners, may it please the Commission, my name is Dalva L. Moellenberg. I'm with the law firm of Gallagher & Kennedy appearing on behalf of Apache Corporation, and I'll let my co-counsel introduce herself as well.

MR. RAZATOS: Thank you, Mr. Moellenberg.

MS. CATALANO: Good morning, Chair and Commissioners. My name is Samantha Catalano, and I'm also with Gallagher & Kennedy on behalf of Apache. Thank you.

MR. RAZATOS: And just so I get it right; Catalano?

MS. CATALANO: Yes, sir.

MR. RAZATOS: Did I say it right?

MS. CATALANO: Yes.

MR. RAZATOS: Okay. With a name like Gerasimos Razatos, you -- you become cognizant of other people's names, so just wanted to make sure. Thank you, Ms. Catalano. I appreciate it.

Anybody else?

MR. TREMAINE: Mr. Chair, this is Jesse Tremaine for the Oil Conservation Division.

I apologize; I very much prefer to attend and participate in person, but like some others today, I have been quite under the weather this week and am trying to avoid contaminating your room. So I will be attending remotely, and Mr. Powell and Ms. Romero are present and can facilitate anything that needs to happen live.

MR. RAZATOS: Excellent. Thank you, Mr. Tremaine.

Anybody else or is that it? That's it? Excellent. So I do know that we want to do some opening statements before we start, so Mr. Moellenberg, we'll start with you.

MR. MOELLENBERG: Thank you, Mr. Chair, Commissioners. Once again, may it please the Commission, let me just start by noting we do have one pre-hearing issue that arose as a result of a filing last night. Perhaps we should address that when Mr.

Rubin is present, but if you prefer we can discuss that now.

MR. RAZATOS: Sure. We can wait until Mr. Rubin is present and then we can go for that. If that's okay with you, Mr. Rubin will be here in about an hour, so we'll probably maybe do opening statements and then take a break and see.

MR. MOELLENBERG: Yeah, or we may be able to proceed depending on if Mr. Tremaine is comfortable. It's an issue that would come up a little later in the hearing, so we may be able to get the evidence started and then come back to that. I just wanted to flag it up front that we have that issue.

MR. RAZATOS: Okay. Since you flagged it, Mr. Tremaine, do you have any concerns if we continue until Mr. Rubin comes or do we want to hold out continuing until Mr. Rubin is here to hear this request?

MR. TREMAINE: Mr. Chair, I don't believe -- well, I'm going to reference this during the opening, so as long as that's okay, I think it won't become an issue unless and until I attempt to enter OCD Exhibits 8 and 9. So I'm comfortable tabling that issue for now.

I don't believe it will impact Apache's case in chief or our cross on any of those witnesses.

MR. RAZATOS: Okay. Mr. Moellenberg, if you're okay with it, then let's just hold out until we come to that point. Is that --

MR. MOELLENBERG: I think that's fine. I think we can -- actually, that probably makes sense. We can address it at the point when the Division seeks to introduce testimony on that or moves for admission; whatever makes sense. Maybe we can consult with Mr. Rubin at some point and see if we need to address it earlier.

MR. RAZATOS: It's a deal. So when Mr. Rubin comes, maybe we could take a break and then consult and go from there.

MR. MOELLENBERG: Okay.

MR. RAZATOS: Great. Thank you.

MR. MOELLENBERG: Well, thank you. Let me give a brief opening statement. Apache Corporation has applied for this hearing to contest some specific conditions that the Division attached to its approval of a plan for further delineation of groundwater contaminants at the location at issue.

And that plan was submitted in early May of 2024, and the conditions, I believe, were

received in late July of 2024. And we'll go over that, of course.

And the conditions at issue involve, primarily, a number of additional monitoring wells that the Division is requiring -- if the conditions are approved -- Apache to install and subsequently sample and monitor for groundwater conditions at the site.

There's a fairly long history of documentation back and forth on this site and a number of exhibits that Apache has identified for the record, most of which were actually in Division records and the electronic system prior to the hearing, and we'll go over those.

Apache intends to present three witnesses. Our first witness will be Mr. Barrett Bole, who is an environmental supervisor with Apache. Mr. Bole is not able to be present in person today, so he will be appearing remotely on the platform.

And our second witness is Mr. Larry -- the person for Apache responsible for management of this particular project early in the stages following the discovery and reporting of the particular release that initiated this matter.

And then our final witness is Mr. John

Grams, and Mr. Grams is a consultant to Apache with the firm, Terracon. And Mr. Grams will go over his review of the technical information in this case and then focus on a comparison of Apache's proposal as subsequently modified after some meetings with the Division versus the conditions of approval established by the Division.

And that, from our perspective, is the focus of this case is the need and reasonableness of the additional monitoring well requirements, particularly in the context of the release that is at issue here. And that concludes my opening.

I do understand we have a court reporter on remotely; is that correct?

MR. RAZATOS: Yes.

MR. MOELLENBERG: Okay. Thank you.

MR. RAZATOS: Sorry. It is. We do have the court reporter remotely, and I'm not sure who the court reporter is, but they are on there, so --

MR. MOELLENBERG: Thank you.

MR. RAZATOS: Yes. Thank you, Mr. Moellenberg.

Mr. Tremaine?

MR. TREMAINE: Good morning, Mr. Chair, Commissioners, and parties. Thank you. We are here

at this hearing today because after several years, there remains a major oil-and-gas-related release or releases that are impacting the environment and, quite potentially, groundwater.

So to kind of lay the groundwork at a summary level, initially, OCD approved Apache's characterization and remediation plans from 2019. So I want to clarify at the outset that OCD has not penalized Apache for any actions taken under that initial plan.

In fact, the Division, as you will hear today, has provided Apache with extensive additional time to develop a delineation and ultimately a remediation plan for the site. What OCD is concerned with and primarily what we will talk about today is Apache's conduct since OCD reassessed the incident beginning in 2022.

OCD was alerted to concerns with Apache's closure report. Those concerns were raised initially by the landowner. At that time in 2022, OCD reviewed the sampling information -- the initial sampling information and the latest sampling information -- and determined that there may be additional work necessary.

Since that time, there has been

extensive communication between the Oil Conservation Division, the landowner, the operator, Apache, and consultants and counsel for all parties. Since OCD's first communication with Apache, in which we indicated that further delineation -- or investigation or remediation may be necessary, it has been over 31 months.

OCD's concern remains that since July 2022, Apache has repeatedly taken only the bare minimum steps required by OCD to further the referenced delineation.

Each step of the process has yielded more questions and less answers, and in OCD's opinion, it appears increasingly likely that the incident -- the problem at hand was larger than originally contemplated and was continuing to or increasingly impacting groundwater.

At this time, OCD cannot determine from Apache's reports if there was one or more releases, whether they are contained, or what the next necessary steps for remediation are, so I want to clarify.

We'll get into this with Mr. Powell's testimony, but the impacted area on the review is massive, and groundwater samples are trending in the wrong direction, so either the originally reported

release is substantially larger than was contemplated or there are multiple releases or both.

In either case, it's the Division's position that Apache has substantial ongoing delineation and remediation requirements under Part 29 and then potentially under Part 30; we're not there yet, but potentially under Part 30.

In May 2024 and September 2024 proposals from Apache, those were inadequate to address and delineate at the time. They're now, given the latest sampling information, wholly inadequate to address issues present from the Q4 2024 sampling report.

So at this time, OCD seeks to compel the identification of all sources of oil and gas contamination in the area of concern, which we'll identify in more detail with Mr. Powell's testimony, and to compel the quite prompt delineation of the impacted areas.

So to be -- the conditions of approval demanded by OCD are, in our opinion, the minimum necessary to delineate. There will necessarily be substantial work after that delineation for Apache to complete -- possibly further soil delineation -- because you'll hear through the testimony today we're

talking about, largely, groundwater monitoring wells.

There's also an issue of soil sampling. Some soil samples are gathered through the drilling of those groundwater monitoring wells, et cetera, but there could be further delineation through both monitoring wells and soil sampling.

So whatever order is issued by the Commission in this case will likely not be the end of the matter. As such, we ask for an order clearly establishing specific and enforceable guidelines through the conditions of approval.

I was planning to briefly address the rebuttal exhibit filed last night and OCD's additional conditions of approval. I'm not going to go into details; I understand we'll receive an objection to those, but to lay the groundwork, Apache submitted the fourth-quarter 2024 sampling data by email to the Oil Conservation Division on January 8, 2025. That's the day before our pre-hearing statements were due.

To my knowledge, it was not and has not been submitted through OCD permitting as a C-141 or groundwater abatement plan or any type of report through OCD permitting. So that was not identified and incorporated in OCD's pre-hearing statement, which was submitted on January 9, 2025

So the content of that that we will discuss has OCD increasingly concerned that levels of contamination are trending in the wrong direction and that it presents potential anomalies that need to be addressed through delineation. Again, the content of that renders OCD's original proposed conditions of approval, in our opinion, inadequate, and more are necessary.

We can address the procedural and admission matters when we get to that point, but our intention is to address the new sampling through OCD Rebuttal Exhibit Number 8 with Rosa Romero first and then OCD Exhibit 9, addressing the actual proposed conditions, with Mr. Powell.

So there's kind of two different things going on there; Exhibit 8 is responding to what, to OCD, is the new information. Substantively, Exhibit 9, which I suspect is really more of the basis for an objection, is discussing what OCD thinks should happen as a result of that new information.

So I agree with Mr. Moellenberg that there's a quite substantial history and record here. What we've attempted to do is distill this to a manageable exhibit list, in summary.

So we have two OCD witnesses today.

Rosa Romero is our environmental bureau chief, and she will be going through the background and history of the incident in the case from OCD's perspective, relying on and summarizing key reports. Most of the exhibits will be coming in addressed initially by Ms. Romero.

And then we have Brandon Powell, who is our deputy director, and he is going to go over OCD's concerns and open questions based on the content of the reports submitted by Apache, and then if admitted, as I addressed in Exhibit 9, additional conditions.

So what we've done with that exhibit is combined the original language of the conditions of approval that are the subject matter of the application for this hearing and then combined that with the additional proposals by OCD.

So at the end of this hearing, we believe that the record will show that Apache has, since July of 2022, failed to develop an adequate investigation and delineation plan and that OCD's updated conditions of approval are necessary for protection of the environment and correlative rights. Thank you.

MR. RAZATOS: Thank you, Mr. Tremaine. Appreciate it. So we've got these opening statements.

I think now, Mr. Moellenberg, we will turn over to you.

MR. MOELLENBERG: Thank you Mr. Chair, Commissioners. Apache calls as its first witness Mr. Barrett Bole. And Mr. Bole is on the platform, I believe.

MR. RAZATOS: Yes. I actually see his picture, so let's give Sheila a moment to pin his profile. Excellent.

Mr. Bole, can you hear us?

MR. BOLE: Yes. Can you hear me?

MR. RAZATOS: Yes, we can. Thank you. We'll have our court reporter swear you in and then we can start with the questioning.

THE REPORTER: Mr. Bole, please raise your right hand.

WHEREUPON,

BARRETT BOLE,

called as a witness and having been first duly sworn to tell the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

MR. RAZATOS: Excellent. Thank you.

Mr. Moellenberg?

MR. MOELLENBERG: Thank you, Mr. Chair.

//

DIRECT EXAMINATION

BY MR. MOELLENBERG:

Q Good morning, Mr. Bole. Thanks for joining us this morning for this hearing. Would you please begin by stating your name and business address for the record?

A Yes. My name is Barrett Bole and my business address is in Midland, Texas, at 33 -- sorry -- 303 Veterans Air Park Lane.

Q And on whose behalf are you providing testimony this morning?

A For my employer, Apache Corporation.

Q And did you provide a copy of your written resume that was submitted along with Apache's pre-hearing statement in this matter?

A Yes. I believe that's Exhibit B.

Q Thank you. Would you please describe your educational history?

A Yes. I obtained a Bachelor of Science and a Master of Science in geology from Sul Ross State University in Alpine, Texas, in 1993 and 1997, respectively.

Q And can you provide a summary for the commissioners regarding your past employment history?

A Sure. I originally started my career with

Diamond Shamrock, which is now Valero Corporation, in 1995 in Houston, Texas, as an environmental coordinator. Subsequently, I worked in multiple environmental consulting firms -- Inserv, TG Resources, and ESA1 -- from 1998 until 2003, when I joined Terracon as an environmental project manager.

I was transferred to Midland in '04 as an operations manager and then ultimately office manager. I joined Apache in 2012 as a senior environmental technician in order to manage groundwater sites and remediation projects.

Q Thank you, Mr. Bole. And what is your current title with Apache?

A My current title is environmental supervisor for U.S. onshore operations.

Q And what are your responsibilities as environmental supervisor?

A Day to day is to respond to environmental incidents that arise in the field. I also do annual things like Tier II reporting, SPCC updates, and generally a lot of different regulatory interface projects.

Q Thank you. Do you have experience with groundwater contaminant delineation projects, and if so, can you summarize that experience?

A Sure. Yes.

When I started at Diamond Shamrock, it is -- it was during the leaking petroleum storage tank craze of the 1990s. I investigated probably 70 to 90 different leaking petroleum storage tank sites in the Gulf Coast, installing hundreds -- even maybe up to a thousand -- monitoring wells from Beaumont to Wharton up to Huntsville and Galveston -- everything in the Gulf Coast area. That was my first job.

And -- and then as a consultant, I did a lot of Phase I and Phase II investigations, which led me to do drilling projects in Indiana, Colorado, New Mexico, more of Texas, and as far away as Rhode Island.

Q Are you aware of a release incident in the vicinity of a well known as the East Blinebry Drinkard Unit Number 37 well, and if so, can you describe how you became aware of that issue?

A Yeah, so we did have a release of produced water at that location near the current location of TMW-7. That release migrated due to topographic distances into the depression, which is adjacent to -- there on the site -- to a windmill.

Those soils were -- I don't know if -- I -- sorry. Those soils were -- there was a dig and haul

done -- an excavation. Of course, Mr. Baker in the room was -- was really in charge of this project at the time. So at -- at that time, we weren't aware that there was going to be a groundwater impact, but we did subsequently do some soil borings that suggested there was migration to the aquifer.

Q So at some point in the investigation of this release and the area, did you take on additional roles regarding the project?

A Yes. In the fall of 2023, when it was very apparent that this was a -- a larger project than we originally anticipated through those results of the later wells -- 5, 6, and 7. And we proposed to install wells, I believe, up to 10, and then up to the current number of 24.

I more or less transferred ownership of this -- this spill and this remediation project from Mr. Baker to myself since I had more groundwater experience than Mr. Baker did.

Q During your career, have you worked on releases similar to the release at issue here?

A Similar but different. The majority of my expertise in groundwater contamination is from petroleum storage tanks as mentioned previously, crude oil releases, condensate releases, dry cleaner

releases such as perchloroethylene and vinyl chloride.

Of course, the primary concerns with those projects as it relates to well installation is the appearance of free liquids on the aquifer, which is known as LNAPL. And so this is the first plume I've worked on which -- it was strictly for inorganic contaminants such as the chloride and TDS. First significant plume.

Q And you mentioned TDS. I don't know if we have described what that means. Can you explain to the commissioners what TDS is?

A It's total dissolved solids in your -- your groundwater.

Q Okay. Did any of the prior releases on which you worked have similar geology and conditions such as the site at issue here?

A Not -- not fully identical. A few of these monitoring wells, but the majority of them are what are called fully penetrating, so they've gone through the entire aquifer into red beds. Generally, chasing crude oil or gasoline plumes, you're not necessarily going through the whole aquifer because you're dealing with more floating contaminants.

So my past experience with LNAPL basically means free gasoline on the aquifer, so we didn't

really need to know aquifer thicknesses to start the remediation on the locations.

Q Are you familiar with the initial groundwater monitoring efforts that Apache conducted at the area around the release, and could you describe your understanding of those?

A Yes. So, initially, when we had the soil release and we had the depression nearby, there was a thought that groundwater might be shallower. And so -- and honestly with the windmill there, we -- we identified that as a potential receptor. And I know in the first rounds we had sampled the windmill, and that's in our Exhibit A-2; I believe.

And then subsequently, to -- to make sure that we didn't have anything moving towards the windmill, we installed monitoring wells, one which is between the windmill and the footprint of the spill; and then we put an upgradient one north of that area, which we call TMW-2.

Q And with regard to these wells, you referenced Apache Exhibit A-2. It's your understanding that that exhibit is the initial remediation plan submitted by Apache?

A Yes.

Q And did that remediation plan contain the

initial results of groundwater sampling from the windmill and the two wells?

A Yes, it did.

Q Okay. Do you recall what those initial sample results were or what they indicated?

A I recall the chloride levels in the windmill and TMW-1 did not exceed the state cleanup standards. And while TMW-2 did contain chloride at 338, which does slightly exceed the -- the 250 cleanup standard, that also falls within what's potentially a naturally occurring slightly elevated level for chlorides in these -- the aquifers of the desert Southwest.

Q And you mentioned cleanup standards. Can you identify your understanding of the source and meaning of what you refer to as the cleanup standards?

A Yes. Well, at the federal and then at the state levels, and everybody has a different set of cleanup standards; New Mexico's are quite strict, and they have set for chloride a cleanup standard of 250 milligrams per liter or also parts per million.

I am -- I don't recall the TDS off the top of my head, but a -- a TDS exceedance can be naturally occurring just from turbidity in the aquifer, so it's -- it's less assigned to a petroleum release than actual chlorides would be.

Q And you mentioned a 250-milligram-per-liter level for chlorides. Do you know if that comes from the New Mexico Water Quality Control Commission Groundwater Standards?

A I -- I believe it does.

Q Okay, so we -- we talked a little bit about the remediation plan, Exhibit A-2. Did that plan provide anything with regard to groundwater monitoring going forward?

A Yes. I believe it -- it included the plan to move forward with quarterly groundwater monitoring. And I'm not sure if that was the exhibit, but it was also decided to advance two additional wells, more or less to get a groundwater gradient.

For those who don't understand, you have to have at least three survey points that are in some triangular form or better in order to determine a groundwater gradient. And the windmill and 1 and 2 pretty much lined up in a linear fashion, so 3 and 4 had to be installed to definitely give us an idea of movement in the groundwater.

Q And is it your understanding that those additional two wells -- the agreement to do those -- was discussed and conferred with OCD?

A Yes, and I believe that was in our Exhibit

A-3.

Q So A-3 is the documentation of the communications regarding the additional two wells, TMW-3 and TMW-4?

A Yes.

Q Okay, so you've mentioned that Apache did quarterly monitoring of these wells. Was that -- were the monitoring results reported to the Division, and can you describe how those were reported?

A I believe those were reported in the December 23, 2020, annual groundwater monitoring report, which was approved by the OCD on July 16th of 2021. And they approved of our continued quarterly monitoring of groundwater in the wells 1 through 4 as well as the windmill.

Q Are you aware whether the Division approved that initial annual groundwater monitoring report?

A Yes. I believe it was approved on July 16, 2021.

Q Around this same time, are you aware whether Apache also submitted a closure report regarding this incident?

A Yes. We did -- we did submit a closure report -- it was dated December 31, 2020 -- which was addressing the soil remediation, which was an

excavation and -- and disposal. That was approved by the OCD without conditions on August 27, 2021.

Q With regard to that closure report, I mean, first of all, can you identify -- is there an Apache exhibit that is that soil closure report?

A Yes. That would be Exhibit A-5.

Q Okay. Let me back up a moment. I may have missed one. We talked earlier about the annual groundwater monitoring report. Is that in one of Apache's exhibits as well?

A Yes, that's Exhibit C-1.

Q C-1. Thank you. So following the Division's approval of Apache's closure report, was there -- in addition to the ongoing monitoring, was there any discussion of some additional monitoring wells?

A The closure report contained an agreement that Apache would continue the quarterly monitoring of 1 through 4 and the windmill. However, yes; in August 8th of 2022, the OCD requested two additional monitoring wells, and those were in response to slightly elevated chlorides in TMW-4.

I believe the initial results of that -- of TMW-4 was -- let me see; I have it written down -- a little over a thousand: 1,020 milligrams per liter.

So that was the first of the four monitoring wells, which exhibited an elevated concentration suggestive of the groundwater being impacted by this release.

Q So can you talk a little more specifically about the discussions regarding two additional monitoring wells and the exhibit that references those discussions?

A Yes. That would be Exhibit B-1, a email from Michael Bratcher to Larry Baker and myself that was on October 3rd of 2022, which asked us to install wells 5 -- or TMW-5 and TMW-6. And those were installed on November 28th of 2022.

Q And up to this point, are you aware of any refusal by Apache to install additional monitoring wells when requested by the Division?

A No, no. We -- we installed the wells as they were requested.

Q Okay, so at this point, I believe -- would you agree with me; we're up to wells TMW-5 and TMW-6? After those wells were installed, do you know what information was derived from the sampling of those wells and the next steps here?

A Yes. After those wells were installed, it was obvious that the plume was increasing towards the southeast, and so we were asked and agreed to install,

I believe, four additional monitoring wells -- TMW-7 through 10 -- and that was done between June 12th and 14th of 2023 under Exhibit B-2, our 2023 Q4 Groundwater Monitoring Report -- Report.

Q So Exhibit 2 is the groundwater monitoring report that provides some of the results from these additional four wells?

A I believe so.

Q Okay. So after -- well, what happened after the wells TMW-7 through TMW-10 were installed and initially monitored?

A So yes, the results of those wells indicated more increasing chloride concentrations. And in October of 2023, the OCD requested that we install as many wells as necessary to delineate the extent of the chloride plume.

Prior to the drilling campaign, Apache and OCD had identified a minimum of five or six wells, but during the drilling campaign, in an effort to expedite delineation based on additional information from the new wells, we attempted to use field screening techniques in order to complete the delineation.

And based on the field data, we installed monitoring wells 11 through 24. And this again was in the fall -- November of 2023. So that was an

additional 14 monitoring wells, which was a pretty extensive mobilization. In -- in my career, I've never installed 14 monitoring wells in -- in one initiation.

The results of that were -- were fairly confident. Using the word, "delineation," is something to find the extremities or the boundary. We barely had -- pretty much had the plume delineated except to the south of 23.

While we had some exceedances around the perimeter of 250, they were not egregious. They were, you know, less than 500 -- 500 to 600 -- but definitely with the core of the chlorides confined to a central or a targeted area in the middle.

Q So just to add a detail here, you mentioned 14 additional monitoring wells. What was the period of the installation of those wells?

A It was November of 2023. I think it went into December slightly, so it was -- it was four to five weeks in the field; I believe.

Q Thank you. And, Mr. Bole, you mentioned that some field data was collected during that drilling campaign to try to complete the delineation. Could you describe what that field data collection was and any limitations that exist regarding the use of

field data?

A Yes, so the drilling was done with an air rotary rig, and, you know, when they would encounter the aquifer, there would be water that was blown back up due to the airstream. And our consultants were capturing that water, and I'm not sure if they were filtering it or not; I -- I wasn't on site for everything.

But they used field test strips and, obviously, if the water was significantly saline, those test strips were spiking and we knew we needed to move out farther. And if they weren't spiking, that's where we ceased moving outward. And by "spiking," I mean we were trying to -- anything over 300, 350, we were jumping outward; anything inside of that, we wanted to see what the actual conditions were.

Q So just to recap a little bit, you started this campaign with the idea that you'd probably need at least five or six wells based on the field data. You ended up installing 14 additional wells during this campaign; is that right?

A Yes. That's correct.

Q And was stopping work at 14 -- was that based on the best information you had from the

collection of field data?

A Yes, it was. And it was at that time we felt, again, we had delineated the extent of the plume from a north, south, east, west standpoint, and we needed to develop the wells and collect samples.

It's pretty typical when a well goes in, you know, you get four quarters before you decide on marching out any further unless, of course, you have free oil or gasoline on the groundwater.

So at that time we felt we had adequate -- adequately delineated the plume again from a north, south, east, west standpoint to a -- not necessarily to the OCD cleanup of 250, but to numbers that were reasonable to presume potential background or were on the perimeter of being less than 250.

Q Thank you, Mr. Bole. So I want to add a little more detail about the next step. We talked a little bit about the field data collection during the drilling campaign itself, and I think you mentioned well development following the initial well installation.

Can you tell us a little more about the well development and then subsequent sampling and analysis of groundwater from those monitoring wells?

A Yes, I can. So after a monitoring well is

installed, the -- the bore is opened with the drill bits. There is slotted PVC piping and then solid PVC piping. You install the well with a sand filter pack and then with a sealed grout to the surface.

But what has happened during installation is you have introduced a lot of free sediment into the well, and so the development is to get that free sediment out of your sand pack and your well bore so that you have the clearest water possible to sample with the least amount of influence from suspended solids.

And that's done by surging and pumping different volumes of water until you -- you visually get a -- a clear water stream.

Q Thank you, Mr. Bole. So you developed the wells and then, as I understand it, you took new or additional samples. Describe that and the lab analysis and summarize for the commissioners what was learned at this stage of the project.

A Yeah, so I wasn't present for the groundwater sampling, but it's my understanding it was done using a low-flow technique, which is a pump slowly lifting the water. The water goes through a multiphase meter, which measures temperature, pH, and other parameters.

And when those all kind of get into a steady state, then that's when it's considered true aquifer and those samples are then collected by the consultant and -- and run to the laboratory. And so the results we have from March -- and I don't have March in front of me, but we -- we did suggest, with the exception of TMW-23, we had a pretty good delineation of the plume.

Again, the higher concentrations are surrounded by intermediate concentrations and it gets lower outward, looking like a perfect contaminant plume of -- of any site I've seen that's been almost fully delineated.

Q So after you got the initial lab results, did Apache provide those to the Division?

A Yes, we did. That was in -- it was in March or April of 2024. I don't have the exact date in front of me, Dalva. I apologize.

Q Okay. Fair enough. No, that's good. I just want to make sure the commissioners understand the timeline of events here. So at any rate, once you obtained those results, were there further discussions between Apache and the Division?

A There were. We -- we had a telephone call -- I believe it was in early April -- about additional delineation in which Apache discussed

the -- the need to look at about five areas where we needed another monitoring well moving outward to delineate to the 250 mark. And the conversations were generally positive, and I felt like we all had a good path of agreement on where the next direction was going to go.

Q As part of those discussions and the subsequent documentation, did Apache believe it had identified the likely source of the most elevated levels of chlorides?

A We -- we had a suspected source of a junction box near TMW-7, and that's where the larger leak that came to the surface originated from. In the oil industry, there are potentials out there for pipes to leak at what's considered the six o'clock position and slowly leak into the ground over years and -- and not be identified.

And so being the location where that ruptured and flowed to the surface, and no other lines are in the area, we -- we identified that as -- as our potential source, and it was proposed to install a soil boring right near that to look for chlorides in the upper soil zone.

Q Thank you. So did these discussions culminate in a written proposal from Apache for

additional monitoring wells and delineation work?
A Yes. We -- we submitted a scope of work dated May 8, 2024, which outlined the -- the discussions that we had had with the OCD.
Q And did that present a specific proposal for additional work from Apache?
A Yes, it did. And that's in Exhibit B-3.
Q Thank you. And at that time, did you believe that the written scope of work dated May 8th reflected the discussions and -- between Apache and the Division and the Division's request for additional delineation work?
A Yes, I did.
Q Did OCD approve the May 8, 2024, Apache proposal?
A No. They -- they did not. We received a response from the OCD on July 24th that -- that did not approve the work plan.
Q Did that communication establish additional conditions for the Division's approval of the May 8, 2024, plan?
A It did. The OCD was requesting an additional 13 to 14 monitoring wells, many of which were inside the plume, which, you know, had already been delineated again to the exterior. These were

wells being put in the interior in an attempt, I guess, just to gather a -- another data point, which are generally extrapolated.

You know, if -- if you have two wells, and one is 500 and one's a thousand, you extrapolate that halfway in between is 750. So we were really surprised by the amount of wells being asked to be installed in, basically, the inner part of the plume.

Q And based on the conditions of approval, what would that have meant in terms of the total number of monitoring wells in response to this release incident?

A It would have pushed it close to 40 total monitoring wells.

Q Okay. So you expressed that you were surprised by the conditions of approval. Did Apache raise concerns with OCD once it had received and reviewed the conditions of approval?

A Yes. We did, and we prepared -- and after a telephone conversation we had with them, we prepared an alternative work plan, which lifted the monitoring wells from five to seven, gave the OCD the right to select four locations for us to install soil borings, and also included the work to do actual aquifer pump tests so we can move this from an investigation to an

actual remediation project.

And so we -- again, we -- we gave in on two additional wells, a couple of additional borings, and the rest of which was in the original work plan.

Q And are you referring in this -- what you just described -- to a revised work plan dated, I believe, September 23rd of 2024?

A I think it's the twenty- -- September 24th. Might be 23rd, 24th, but yes, and that's under Exhibit B-4.

Q B-4. Okay. Thank you. And just to jump back, you mentioned that Apache submitted this revised work plan. Did Apache provide any detail in its discussions with the Division on its reasons for objecting to all of the additional monitoring wells that the Division wanted?

A I -- I can't clearly answer that yes or no. I believe that our -- our position was, as I mentioned, that there were a lot of infield wells that at the time would have only been to produce more data and not actually advance this to a remediation project.

Q Right. What was the Division's response to the September 2024 modified work plan that Apache submitted?

A I -- I believe an email was sent to our counsel notifying us that the OCD intended to cancel all further meetings and terminate discussions to resolve Apache's concerns. Their counsel advised us that if we weren't willing to fully comply with their conditions of approval, we would need to apply for a hearing.

Q Mr. Bole, in your experience and based on your expertise in dealing with delineation of groundwater contaminants, do you believe that Apache's September 2024 work plan was a reasonable compromise and good faith attempt on behalf of Apache to address the Division's concerns?

A Yes. In -- in my 30 years' experience, monitoring wells are put in, and unless you have free phase product -- crude oil -- floating on the aquifer, as I've mentioned before; gasoline, or DNAPL near a dry cleaner, generally you collect, you know, at least two, usually four, quarters of data. And then you make your selections on where you're moving your wells.

We were being asked to place wells based on one sampling event, which is just not an industry standard, again, unless you have 2 feet of crude oil floating on the aquifer.

In this case, we have chlorides as the primary contaminant of concern, and so it -- it didn't seem -- it seemed like the response from the OCD was a little excessive, considering, again, we were pretty much delineated from a north, south, east, west; we had identified the aquifer was thicker in the middle and likely a sink for these contaminants; and that we were prepared to do an aquifer pump test.

And why that, you know, was -- was not acceptable is -- is -- I -- I don't know.

Q Would you agree with the characterization that Apache's objective during this process was just to do the bare minimum that might be required at any point in time?

A No, not the bare minimum. Mobilizing and installing 14 wells is way above and beyond bare minimum.

Q Mr. Bole, does this conclude your direct testimony?

A Yes.

Q And is it your intent to listen to the Division's testimony and be available in case we'd like to recall you to respond to that testimony?

A Yes. I will take myself off video, but I will be here.

MR. MOELLENBERG: Okay. Thank you, Mr. Bole.

We are finished with this witness.

MR. RAZATOS: Mr. Tremaine?

MR. TREMAINE: Thank you.

Good morning, Mr. Chair, Commissioners, and Mr. Bole. Appreciate it. I do have a number of questions for Mr. Bole.

CROSS-EXAMINATION

BY MR. TREMAINE:

Q First, Mr. Bole, you had -- I believe, in your testimony a few moments ago, you had identified chlorides as inorganic; is that correct?

A Yes, as opposed to benzenes, toluenes, ethyl benzenes, which break down.

Q And did you indicate that this was your first plume that you were dealing with inorganic contaminants?

A As -- as chlorides of the primary concern, yes.

Q Thank you. Do chlorides naturally break down in the environment?

A To my knowledge, they do not. They -- they dilute with time and movement and introduction of water to the aquifer, but they do not break down.

MR. TREMAINE: Okay. Thank you. I'm going to refer you to page 2 of Exhibit B; it's page 2 of 733.

And if I could share my screen, Mr. Chair?

MR. RAZATOS: Yes.

Sheila, can you give him the ability?

BY MR. TREMAINE:

Q Is this the email from Mr. Billings that you had referred to in your testimony regarding one of OCD's approval of the either characterization or delineation?

A I believe so.

Q Okay. Is it true that this response from OCD indicates that the approval does not relieve the operator of liability should the operations fail to adequately investigate and remediate contamination?

A Can you scroll down? I can't see the entire document.

Q Sure. I can scroll down.

A Oh, there. That's good. That's good. Thank you.

Q The section that I was referring to is this information that I'm highlighting here.

A And can you repeat the question?

Q Do you acknowledge that OCD at the time of the approval informed Apache that it was not relieved of reliability should its operations fail to adequately investigate or remediate contamination?
A Yes.
Q Okay. Thank you. I'm going to move on to page 4 of -- did it work? Why did that not work? All right.
And on page 4 of 733 of Apache's Exhibit B, is it accurate to state that OCD required additional wells in October of 2022?
A Yes.
Q Thank you. And bear, with me, Mr. Bole. Some of this you've referenced; I'm trying to ask some clarifying questions and kind of put some finer points on the exhibits from where some of this is coming from.
So I want to refer you to page 8 of the same exhibit packet -- 8 of 733. Is this the March 27, 2024, report, which provided the analysis from the sampling event?
A From the December 2023 sampling event?
Q I believe that is correct, yes.
A I believe -- yes, I believe so.
Q Okay. In this report, did Apache identify

additional contamination or specific samples which were above the threshold you referenced in Part 29?

A Oh, we -- we certainly did. TMW-17 and 15, 14 -- those in the center of the monitoring well field -- were significantly elevated.

Q As a result of that finding, did Apache propose any additional monitoring wells or any other form of delineation to assist in identifying the source of the contamination?

A We did in our May submittal.

Q Sorry; I'm not sure if that cut out or if I didn't hear you correctly. Did you say in the subsequent May of 2024 report you did?

A That's correct. Where we offered to do soil borings near TMW-7 -- I'm sorry -- the junction box near TMW-7.

Q And pardon me; I misspoke when I said that. I'm still dealing with a head cold. I should have referred to it as that May scope of work for additional investigation. I called it a report. Just want to make sure we're talking about the same thing.

A Clear. Yes.

Q Thank you. So within the same report, on page 15, there's a section under conclusions. And you had just referred to this where it identifies several

contaminated wells; correct?
A Yeah. This was written by our consultant, so yes.
Q Thank you for that clarification. So this was prepared by Terracon?
A This was prepared by Larson & Associates.
Q Thank you.
A Subsequently, just after this -- just as general information -- Mr. Larson announced to us that he was closing his practice down immediately, and we -- we shift to Terracon immediately because of their expertise in groundwater. So there may be a little hangover between consultant one and consultant two.
Q Thank you for that clarification. And I should clarify, by "you," I should have referred to Apache. So this was adopted and submitted by Apache. And so in this section -- is this the section that refers to Apache's intent to continue quarterly monitoring of the groundwater in wells TMW-1 through 10 and the windmill during 2024?
A Yeah, and so that would have been a typo on TMW-10. It would have been 1 through 24.
Q Thank you; 1 through 24. Okay. But overall, the intent as represented here would have

been that you would continue doing quarterly monitoring through 2024 with laboratory analysis for various compounds such as BTEX, chloride, and TDS; correct?

A That's correct.

Q And did that proposal include any additional wells? I had here from TMW-10, but other than the wells that you referenced, did there -- was there any proposal to sample or continue monitoring at any other wells?

A Again, this would have been a typo, so it would have been 1 through 24, no additional beyond that. Plus -- plus the windmill; excuse me.

Q All right. The language that's referenced -- one moment.

All right, so I'm going to direct you down to this highlighted section, which is what we've been talking about here. My questions are based on the text that says "TMW-1 through TMW-10," and I understand from your testimony you have identified that as a typo that was intended to include through TMW-24; correct?

A That's correct.

Q Okay. Do you understand and acknowledge that at the time that this was submitted, OCD is

relying on the representation in the text here that what was proposed at the time in writing was TMW-1 through TMW-10?

MR. MOELLENBERG: Objection to his -- relating to his knowledge of OCD's intent or understanding.

MR. TREMAINE: That's fair. Withdrawn.

BY MR. TREMAINE:

Q Mr. Bole, would you acknowledge that it would be reasonable for OCD to rely on the plain text of the report?

A I would agree.

Q And so based on this submission, Apache was -- the text of this submission is not purporting for or intending for Apache to continue monitoring at TMW-17; correct?

A That could be inferred.

Q Thank you. Move on to -- again, in Apache Exhibit B, page 34 of 733, I draw your attention again to this disclaimer language presented by OCD. Do you understand that in Mr. Billings' responses it was communicated to Apache that they were not relieved of liability should their operations fail to adequately investigate and remediate contamination?

A Yes.

Q And would it also be reasonable to state that such a disclaimer would apply in the event that either Apache or OCD became aware of new information?
A Yes.
Q Thank you. We'll move on to 168 -- pages 168 and 169. I'm going to try to fit this on the share screen. And so what I have here on page 168, Mr. Bole; is this the groundwater flow map submitted in December of 2023 from Apache to OCD?
A It appears to be so, yes.
Q And from December -- and then let me scroll to the next. Is this next page -- page 169 of Apache's exhibit; is this the same flow map from March of 2024?
A Yes.
Q Did the groundwater flow directions change between the December flow map -- I've gone back to page 168 -- and the March flow map on page 169?
A By "change," are they going in a perfect zero to 360 degree? No; they're slightly different, but generally, out there, we've seen a south-to-southeast flow over all of the events that we've done.
Q Okay. Thank you for that, Mr. Bole. Let me draw your attention specifically to TMW-4 on page 168, the December flow map. Would you agree that that flow

is generally north-northeast to south-southwest represented on this map?

A Generally, yes.

Q Okay.

A Based on the data points, yeah.

Q Thank you. And then in the March report -- I'm not sure how to characterize this, but the December -- I'm sorry -- the March report at TMW-4 seems to indicate that the groundwater flow map is actually moving from TMW-4 in a westerly, a easterly, and a southerly direction; is that fair?

A That's what the map suggests, yes.

Q Okay. Can you identify any reason that Apache knows that this flow direction changed between December of 2023 and March of 2024?

A I -- I have a couple of theories, and one is human error. I -- I had a consultant that was on the verge of going out of business. They might have been rushing their gauges. They may have written down their field notes incorrectly.

I will agree this map looks awful. It doesn't -- it doesn't look like any of the previous maps. So this one may be just chalked up to bad data.

Or if they did measurements on two different dates; if it was a -- a two-day mobilization, you

know, barometric pressure and things like that can change the aquifer. Infiltration from rainfall -- there's a lot of different things that could cause this air like this.

But yes, from -- from looking at it, it -- it looks a little chaotic.

Q Since that time in the March 2024 flow map, has Apache done -- taken any further steps to investigate the specific change I've pointed out between December '23 and March 2024?

A Yeah. Since -- yes. We -- due to the downtime, to the back and forth of the work plans, and the events occurring over the summer, we -- we didn't get out there. But we did finally get out, I believe, in October, and we did another full round of sampling and gauging. And I believe Mr. Grams will cover that in his testimony later.

Q Okay. Thank you. Let's see here. I'm going to draw your attention now to -- sorry; I'm trying to address these topically, so I apologize for kind of jumping around on the pages in the exhibit, but I'm drawing your attention to page 145 of Apache's Exhibit B packet -- 145 of 733 -- referring to recovery test well at TMW-27. Do you understand what I'm referring to?

A Yeah, that was a proposed, I believe, 6-inch well to the north of 17 if memory serves.

Q Based on the area maps, is that proposed well upgradient of TMW-17?

A It would have been up from 17 but downgradient of our -- where we believe is our release location, so it would have been in proximity; 17 would have been one of the wells we would have been gauging to see the radius of influence. So it -- it would have been within, optimistically, a radius of influence.

Q Okay. So TMW-27, then -- as I understand what you're saying -- would have identified contamination migrating from the original release point; is that correct?

A That would have been the intention. That -- that location was chosen based on that potential.

Q But it would not have benefited in the form of identifying contamination if it was migrating downgradient from TMW-17; correct?

A I don't understand the question.

Q It would necessarily, because of its location, not have identified if contamination was migrating downgradient from TMW-17?

A If -- if the -- if the presumption is that

17 is the most elevated well, then the answer would be yes.

Q Thank you. What is the distance between TMW-27 and TMW-17?

A I do not have that map in front of me, but I believe it was within 150 to 200 feet. But I -- I don't have that map in front of me. Do you have a map of the proposed wells?

Q Let me see if I can pull that up. I don't think I have a reference here.

A Because if you do, then the -- the scale will answer that question.

Q So according to OCD's referral to the map, we came up with the distance between the wells of approximately 300 feet. Would you have any reason to disagree with that?

A No.

Q And would you agree that TMW-17 has the highest contamination sample to date?

A That -- that's correct. Yes.

Q Okay, so if you're proposing to sample at TMW-7 upgradient, and the highest contamination point to date is at TMW-17, wouldn't you be attempting to sample for contamination that was effectively flowing upgradient?

A We've got to consider this in three dimensions. We're identifying a source near TMW-7 that migrates straight down through the earth to the aquifer and then drifts towards 17. So if we're looking for surface contamination around 17, where there are no flow lines and there are no produced water lines, then we're going to find soils that are clean.

If we want to find the source, then we need to go where we think the source was and drill through that soil column to see if, from the surface down, it remains salty.

Q So your answer to this question assumes that you are correct in that there is a single source of contamination located in the vicinity of the original reported release; correct?

A That's correct.

Q If you happen to be wrong about that, would it be an appropriate practice to place the remediation well that we've referenced, TMW-17, 300 feet upgradient from the highest contamination?

A Again, I'm not -- I'm not following your line of questioning.

Q Well, let's say you're investigating a new release and you have identified the highest point of

contamination. Is it a common practice to place a remediation well, such as TMW-27, 300 feet upgradient from the highest contamination?

A Okay, so a remediation test well is for aquifer testing; it has no relation to the concentrations of the contaminants. It is there to see what the porosity and the permeability of the aquifer is so that a system can be developed and planned around engineered subsurface conditions.

It is not necessarily going to be the recovery well; it's going to be the aquifer test well, but it's being placed where, based on where we believe the release was and the groundwater flow, that we will find elevated-enough chlorides that might be more elevated than 17 or they might be slightly less.

Q Okay. In the same section, Mr. Bole, is it true that Apache's plan proposed to provide updates to OCD once per year for three to five years?

A If that is what is written, then yes; that's what was promoted -- proposed.

Q Okay. I'll refer you to page 168 again of the same. So based on this map, page 168, which is the December 2023 flow map, what is the closest existing or proposed well directly downgradient of TMW-17?

A I -- I don't have the map of the proposed wells in front of me.

Q I'm sharing -- pardon, Mr. Bole. I've been sharing screens. So can you see the exhibit that I'm sharing?

A Yes. I can see 17, and -- and 18 is below it, yes.

Q Okay, and can you tell from the scale here how far it is between 17 and 18?

A Based on the scale, it looks like it's upwards of -- 17 to 18 -- approximately 550 feet maybe.

Q Thank you. I'm going to move on to page 181 of your exhibit. Did Mr. Bratcher's November 14, 2023, email approval require an additional well?

A Yes, it did.

Q Would you agree that the well described in Mr. Bratcher's condition is located between TMW-5 and -- sorry. Would you agree that the well described in the condition between TMW-5 and TMW-15 ended up being TMW-17?

A Yes. That's correct.

Q Okay. And -- okay. We've already established that's the highest -- let's see. Would you agree that if OCD had not requested the additional

well, Apache would not have identified the point of highest chloride contamination to date?

A Yes. And to add to that, we still might not have. It could be slightly to the south. But again, the highest concentration does not necessarily speed up the remedial process.

Q Okay. Did TMW-17 significantly change -- or the findings from TMW-17 significantly change -- the chloride contour maps?

A Yes.

Q Going to move on to page 153 of 733, again, in the same exhibit packet. I am referring to Table 2 of the groundwater sample analytical data summary submitted by Apache. Would you agree -- so I'm identifying the first section here, and I'll try to blow this up again. The first table in Table 2 -- or sub-table -- is the windmill. Would you agree?

A Yes. I can see that.

Q And would you agree that since sampling began in 2019 that we've seen a trend of higher chloride samples at the windmill over time?

A I would say that the last five sampling events have indicated an increase, but the previous events went up and down in and out of the 250.

Q Thank you. I'm going to go back to, now,

page 170, which is a map of chloride concentrations in groundwater from December of 2023. Mr. Bole, based on the gradient maps, can you positively point to the source of elevated chlorides that are shown in TMW-13 up here in the upper right of the page?

A Can -- can you expand that map slightly? I'm sorry.

Q Sure. I'll attempt to here. So I'm zooming in on the upper right hand of the map and directing your attention to TMW-17 -- sorry -- TMW-13. So let me ask a different foundational question, then. TMW-13 on this map; would you agree that it is located to the northeast of the originally identified source of the release or contamination that was reported in 2019?

A Yes. Yes. North or east-northeast. Yeah.

Q And would you agree that, based on the groundwater flow maps that we have previously discussed, that TMW-13 is upgradient from the previously reported source of chloride contamination?

A I would argue depending on the gauging event, it could be considered cross-gradient as well, but generally upgradient to cross-gradient.

Q Do you disagree with the groundwater flow maps that were prepared by -- I believe it was Larson

& Associates?
A No. I do not disagree with them.
Q Okay. So --
A Well, other -- other than the March of 2024 that I mentioned might have been a field error.
Q And that's when we were referring to the multidirectional flow indicated at TMW-4; is that what you're referring to?
A Yes. Yes.
Q Okay, so would you agree that on this map -- what I'm sharing on screen -- that this red highlighted area is what was identified in 2019 as the original release and flow path of the produced water?
A Yes. The -- the red mark indicates where soils were excavated.
Q Okay. Thank you. So the original release was over here, and so I'm asking you about TMW-13. Let me scroll out. Pardon. We have the scale here. How far is it from TMW-17 -- sorry -- TMW-7 to TMW-13, approximately?
A Looks like about 300 feet.
Q So when you look at this map, Mr. Bole, can you plausibly tell us what the source of the elevated TDS or chloride --
MR. RAZATOS: Mr. Tremaine, you were

covering your microphone. Can you please start your question over?

MR. TREMAINE: My apologies.

BY MR. TREMAINE:

Q Mr. Bole, so based on this map, when you look at this map, can you please -- can you tell us whether or not you can plausibly identify the source of the contamination that is represented in the elevated TDS and/or chlorides that were sampled at TMW-13?

A Again, we've identified the one area as the one potential source for both of these releases at that junction box. Any variances to groundwater flow direction that have occurred prior to our investigation might cause the plume to spread wide as it moves laterally with the flow, so TMW-13 does not cause me too much concern knowing that 22 and 12 above it do not have significant chloride concentrations.

Although 12 is above the New Mexico level, it's -- it's under 500. So I believe our proposal; we were going to install a monitoring well between 12 and 22 to address that and see if that's just the perimeter of the chloride contamination.

Q Okay, so as I understand your testimony, I believe you are saying that you believe it is possible

that the 2009 release is responsible for this elevated chloride level at TMW-13 as measured in December 2023; is that correct?

A It's -- it's entirely probable, yes.

MR. MOELLENBERG: I --

MR. RAZATOS: Turn your microphone on.

MR. MOELLENBERG: Sorry. I was just objecting there to the form.

I think you said 2009; perhaps you meant 2019, Mr. Tremaine.

MR. TREMAINE: I did mean 2019. Again, I apologize, I'm probably mumbling. Thank you for bearing with me.

Yes, so the event occurred -- the initial report of release occurred in 2019, so I'm trying to clarify that it was Mr. Bole's testimony that the elevated samples in 2023 at TMW-13 were potentially, in his opinion, caused by the initial reported release from 2019.

BY MR. TREMAINE:

Q With that clarification, does that change your --

A No, no. That's -- that's --

Q Right.

A Sorry. That's -- that's not my response.

My response is the elevated chlorides in 13 are potentially from a release never discovered from the junction box where also the second release surfaced from.

Q So is it your belief that there are more than one releases represented on this map?

A At -- from this exact same location, yes. From multiple locations, no.

Q So -- okay. So you believe --

A Let -- can I -- Let me --

Q Yeah. Go ahead. Yes. Please explain.

A So -- okay. If -- if produced water is dripping from the bottom of a pipe and not surfacing and it's going through the subsurface, you don't know which layers are causing that to shift one way or another or if it's porous all the way down. So you could have a subsurface where it moves one way and it falls to another and it falls.

And so unless you -- you know, you're sampling at the source and you know, perhaps the -- the dip of one of the upper beds caused that release to move towards 13, then, where it found passage down to the aquifer.

That's an inferment. It -- we don't know because we don't have any geologic data between the

two. But again, so not from the 2019 release. From the suspected release that occurred long-term prior to that.

Q Okay. And am I understanding you correctly that you believe that to be from the same location as the 2019 reported release?

A We do. We don't have any other sections of pipe where we have had any suspected failures that have surfaced, so that -- that seems to be the ideal candidate.

Q And can you reasonably identify whether that release may have occurred prior to or since the 2019 release?

A No, it would have been prior to 2019.

Q So we're talking about this. I believe -- I don't want to paraphrase you here and get this wrong, but I believe you had indicated it was hundreds of feet away from TMW-7 to TMW-13.

So if we're looking at this elevated level in December of 2023 at TMW-13, for example, that we've already discussed; and again, with the additional foundation that Apache believes that the source of the contamination is from the same general area as the 2019 release; has Apache calculated how much produced water it would have taken to impact the area that is

depicted as impacted at groundwater level on this map?
A No.
Q I'm nearing the end here, Mr. Bole. Bear with me here.
A Yeah. No worries, no worries.
Q Yep. Very weedy and I'm moving slow. All right. On page 168, 169 again; we've talked about the '23 and the early -- the March '24 groundwater flow maps. Actually, pardon me. Strike that. We've already covered that. I had a repetitive question. Thank you.
I want to direct you to page 4 of -- in the statement of the case. All right. Bear with me. I'm pulling up the wrong page here. But, Mr. Bole, would you agree that Apache's submission in this case indicates that, and I quote:
"The characterization requirements pursuant to Section 19.15.29.12.A do not require operators to investigate unrelated potential sources of contamination. OCD's conditions of approval require Apache to install wells for this purpose, which is unrelated to the relief at issue here."
Do you agree that Apache has taken this position?
A Can you either put that up on the screen so

I can see it or say that again, please?

Q I am trying to. For some reason I'm lost within the document here. Pardon. I've got a page number wrong here.

MR. RAZATOS: Mr. Tremaine, everybody here is showing page 4.

DR. AMPOMAH: Page 4 of the pre-hearing statement, too, has that statement.

MR. MOELLENBERG: Can I --

MR. TREMAINE: Thank you.

MR. RAZATOS: Your microphone, Mr. Moellenberg.

MR. MOELLENBERG: I apologize. I would interject an objection that to the extent this calls for a legal conclusion that Apache would object.

MR. TREMAINE: Okay, well, I'll tell you what. The quote -- I can move on, actually, even without the quote.

BY MR. TREMAINE:

Q So, Mr. Bole, would you acknowledge that Apache is required to remediate all releases under Part 29 of the New Mexico Administrative Code 19.15.29?

MR. MOELLENBERG: Object to the extent it calls for a legal conclusion.

MR. TREMAINE: I think that Mr. Bole has testified to the extent that he's responsible for and oversees remediation and understood it was a requirement to remediate releases. I don't think that that's a legal conclusion, but I can ask the question more generally.

MR. MOELLENBERG: I would answer, "Ask the question more generally," Mr. Tremaine.

BY MR. TREMAINE:

Q Mr. Bole, do you agree that Apache is expected to and required to remediate all releases?

A Yes.

Q Okay, and if there are more than one releases in a given area, is it your understanding that Apache is required to notify OCD of each and every qualifying release?

A If the release is known, yes.

Q Okay. Earlier in your testimony, you had indicated that the contamination at TMW-13 may have come from a different release in the same location; is that correct?

A It's -- it's probable.

Q Okay. Did Apache file any reports notifying OCD of a second release occurring in the area?

A As I stated before, we didn't know of any.

It's suspect; we wish to investigate it with soil boring.

MR. TREMAINE: Thank you. And with that, Mr. Bole, I really appreciate your time. I don't believe I have any further questions for you.

THE WITNESS: Well, thank you, Mr. Tremaine. Appreciate it.

MR. RAZATOS: Thank you, Mr. Tremaine.

Mr. Moellenberg, did you have any redirect?

MR. MOELLENBERG: Yes. Thank you, Mr. Chair. I do have a little bit of redirect here.

REDIRECT EXAMINATION

BY MR. MOELLENBERG:

Q Let me clarify -- I'm going to go kind of in reverse order here -- one answer to a question Mr. Tremaine asked, Mr. Bole.

Mr. Bole, I believe Mr. Tremaine asked you if Apache was required to remediate all releases without qualification, and I'm wondering if, on reflection, you might have any qualifications to your answer, particularly with regard to who is responsible for a particular release?

A Oh. Right. So yeah, a release maybe occurring on our lease by another operator would be

that other operator's responsibility.

Q Thank you. Let me also clarify some of the discussion regarding -- I guess as I would characterize it -- potential migration pathways from the area around well TMW-7 to the area around well TMW-13. Do you recall that discussion, Mr. Bole?

A Yes.

Q Could you summarize for us how there might be potential migration pathways from a release in the vicinity of well TMW-7 to the release -- or to the location of well TMW-13, considering the groundwater elevations and other information there?

A Yes. And again, as I mentioned, the subsurface geology, including the permeability and the porosity of each layer, can affect as the fluid flows through the subsurface as it's trying to get to the aquifer. It's not always just a straight down -- like not necessarily always just like a column.

And we've seen this in dry cleaner releases where the -- the heavier -- the DNAPLs will -- they'll -- I wish I had a chalkboard -- but they'll -- they'll hit a confining layer and they'll move laterally until they find more porous, and they'll move down. And, you know, where you have caliche layers here, you have pretty tight permeability and

porosity.

So, you know, if -- if those fluids hit the caliche, they envelop it and then they move; then they find more porous soils; then -- you know, that is one way for a spill that occurred over here at A to be in the groundwater over at part -- or at location B.

That's hypothetical. It's a potential. It's -- it's unknown, but the other thing we could have, if this is a historical spill dating back, you know, even maybe before Apache were the operators, then there could have been varying groundwater flows in the past.

You know, we've had massive cycles of drought followed by intense rainfall, and -- and out here, that really does affect aquifer flow on those massive seasonal shifts. So the answer is I don't know, but there -- there are explanations.

Q Is there any data available that you're aware of that could be used to assess changes in groundwater flow direction in this area prior to 2019?

A Possibly, but I -- I would need to lean on -- I don't want to put Mr. Baker on the spot, but he may have more knowledge about groundwater flow in that area. He was a consultant in the Hobbs area for several years prior to Apache, and he may have worked

on some of these projects or -- or know folks that have that would have that knowledge.

Q Thank you. And just again to remind the Commission, you are saying that there are some information gaps in this area and that Apache has proposed one or more soil borings to try to find some answers to the remaining questions?

A That's correct.

Q The last thing; do you recall Mr. Tremaine's questions to you regarding the March 27 groundwater report -- I believe it's Exhibit B-2 -- regarding the statement that Apache would monitor wells TMW-1 through 10 as opposed to TMW-1 through 24?

A I did and I reviewed that report, so that's on me for missing that typo.

Q Do I recall correctly that in your testimony you talked about a series of communications following very quickly after that report, I believe in April of 2024?

A Yes. I -- I can't recall the exact time, but I believe Bruce and I had a conference call with NMOCD over the next proposal. We discussed where the gaps were, and they were mostly on the perimeter. And -- and we wrote that proposal up based on the verbal conversation.

Q During those discussions, do you recall the Division staff engaged in those discussions raising a significant concern about the limitation of further groundwater monitoring to only wells TMW-1 through 10?

A No.

MR. MOELLENBERG: Thank you. That's all I have.

MR. RAZATOS: Thank you, Mr. Moellenberg.

Commissioners, do you have any questions?

Commissioner Ampomah?

DR. AMPOMAH: I do have couple. Thank you for being here today. My first question to you is what measures were taken to understand the extent of the migration of the release prior to reporting to OCD?

THE WITNESS: The -- the 2019 release?

DR. AMPOMAH: Yeah. The first release. Yes.

THE WITNESS: Yeah. The -- the Commission was notified. And again, this is probably a question for Mr. Larry Baker. He was the project manager overseeing the soil cleanup.

DR. AMPOMAH: Okay.

THE WITNESS: So he -- he would have done the reporting, and -- and I know he did do the reporting.

DR. AMPOMAH: Yeah. And when I ask the question and someone else can answer, then just let me know. So thank you for that.

THE WITNESS: Yeah, yeah. No worries.

DR. AMPOMAH: Okay, so then definitely Mr. Baker can also respond to what information went into the delineation or can you respond to that?

THE WITNESS: If you are referring to soil or groundwater, those would be two different things. Bruce did the soil delineation and we're still currently finalizing the groundwater delineation.

DR. AMPOMAH: Okay. So based on your testimony and based on Mr. Tremaine going through some of the other bits, which was really helpful, at least to me, as of now, you do have monitoring wells -- about 24 monitoring wells. And each of these monitoring wells -- looking at March 2024 report -- most of these wells do have elevated chlorides; is that correct?

THE WITNESS: Most of these wells have elevated chlorides. There are a handful that

slightly -- just slightly -- exceed the NMOCD cleanup standard and, again, could be construed as more elevated background.

But in general, we have a plume that has a -- basically a hot center and a warm middle and it cools off around the edges, which is indicative of a -- of a pretty good delineation of a plume considering the contaminant level that is in the middle.

DR. AMPOMAH: So based on your testimony, you are saying that if Apache is to more or less follow the conditions that have been provided by NMOCD, you will be required to drill about 40 total monitoring wells; is that correct?

THE WITNESS: Yes. The first response; there was a supplementary response that came in, I think yesterday, which would push that number even higher.

DR. AMPOMAH: Okay, so do you have a map to show the Commission Apache's plan and then that of NMOCD's plan? Do you have a map to show us?

THE WITNESS: I do not. I believe Mr. Grams' testimony is going to cover that.

DR. AMPOMAH: Okay, so that will come in later. Okay.

THE WITNESS: Yes, sir.

DR. AMPOMAH: Okay. Okay. Now, you talked about there are some typos or misrepresentation in the results on the March 2024 report. So if there were such inconsistencies in that report, did Apache repeat that results -- that sampling -- or let's say that results and updated that to NMOCD?

THE WITNESS: No, we did not re-sample the water. I felt the -- the samples were probably representative, but I think the gauging data looked -- it looked off. And again, the typo in the bottom we've already covered was to extend quarterly sampling through all of the wells on location, including the windmill.

DR. AMPOMAH: Now, so let's say -- let me check here. There was a conclusion that even with the March report -- the March 2024 report -- if you look at the exterior wells. So looking at TMW-23, TMW-24, and even the ones at the upper -- at the northern sections where all more or less do have some elevated chlorides in there.

So based on your March report -- and I hope there is more or less an updated March report -- can Apache confidently say that they have delineated fully the extent of the -- let's say the spill or the

migration of the spill?

THE WITNESS: I -- I would like to reiterate what I previously stated. This is one sample event for all of these exterior wells. We do not make more drilling decisions off of one sampling event. And so the 458 you're seeing in 12 might turn out to be 240, might end up being 235. We -- again, we have one snapshot here, which does not lead itself to installing 14 more wells without multiple groundwater events.

DR. AMPOMAH: Now --

THE WITNESS: Now, we did -- we -- we did in our proposal agree to go south of TMW-23. That's -- that's definitely an acceptable exceedance there at 10-10. And I believe we were going to go between 11 and 12 to the northwest. So -- so some of these were already under consideration under the next round of well installation.

DR. AMPOMAH: Yeah. I think definitely to help the Commission, if clearly on the presentation shown Apache's plan and then that of NMOCD plan, you know; that will really help us to more or less dig deeper into it. Now, there --

THE WITNESS: There -- there is a -- oh. Sorry; go ahead.

DR. AMPOMAH: Okay. Thank you. And I'm looking forward to Mr. Baker's testimony. So based on the cross, it sounds to me that Apache does not know the volume of the contaminant. Neither do they know the extent of the contaminant. Is that a fair statement?

THE WITNESS: I think we've demonstrated the extent here, again, with these perimeter monitoring wells with the exception of going south of 23. If -- if the spill we are chasing is a historical event from the junction box that happened either many years ago or many, many years ago, then we're just not going to have that data.

There's going to be -- if --- if we discover that -- that there was in fact a leak at the junction box which never surfaced, we don't have any record of changing out any pipe there. We don't know if our predecessors did.

So this is a large area. This, to me, suggests there is a source or there is a point, which we think we've identified, where a spill happened a long time ago to fill up this much space. And it went on for probably a long time. If -- if we were operators at the time, I don't know.

So yes; you're right. And then we

don't know the whole picture because the spill we had doesn't appear to have made this big of a mess. But again, we're looking at that junction box as the -- pretty much the only source we can see when we look around that would be on us.

So that's -- anyway, that's why we're wanting to do a soil boring there to see if we can catch the -- that data and move forward.

DR. AMPOMAH: You made mention that you are not in the business of drilling bore holes or, let's say, monitoring wells just based on one sampling data. Let me ask; are you familiar with groundwater contamination flow modeling?

THE WITNESS: Yes.

DR. AMPOMAH: Was that applied here?

THE WITNESS: Just through our groundwater gradient maps, yes. But again, doing an aquifer pump test will give us that data that we need to help really understand the subsurface and the conditions of the aquifer characteristics.

DR. AMPOMAH: Did Apache try to do that, especially when you went from 2 to, like, let's say, 10 to 24? Did Apache even plan to more or less perform any additional -- or more or less get some data to fill in the gaps to perform the model to rebut

that OCD comes up with?

THE WITNESS: That was in our May proposal to install that well and do that test.

DR. AMPOMAH: So are you saying that in Apache's proposal, they proposed to perform groundwater modeling?

THE WITNESS: Yes. Groundwater pump testing, which would include some modeling.

DR. AMPOMAH: Definitely I want to see that as part of the conditions because if you do that, then probably it might reduce the number of wells that you need to drill with some strong justification.

And I must say that OCD has to protect the -- the health of the people. So if you have a landowner, you know, putting pressure on the government with elevated chloride in their water, that is a big concern. So definitely I want to see some modeling done to justify why Apache should not more or less drill all these wells that OCD is proposing. And that will help a lot.

I'm sure for those of us who have knowledge in the groundwater modeling, even that can tell you that probably there are multiple sources that probably you did not really know based on your testimony today.

MR. RAZATOS: Commissioner Ampomah, was that a question or a statement?

DR. AMPOMAH: No, the last one was a statement.

MR. RAZATOS: Okay.

DR. AMPOMAH: Yeah, just to support that a groundwater modeling needed to have been performed because I do see that this is just a trial-and-error system that is being conducted here. But if we do groundwater modeling, then definitely that could have solved most of these concerns that OCD and even the landowner do have.

And I don't see that here, so it's really difficult. But definitely I'm waiting for the testimony where you compare NMOCD's proposal and Apache's proposal and we can more or less use science to see which one is the best. Thank you.

MR. RAZATOS: Okay. Any more questions for Mr. Bole from you?

DR. AMPOMAH: No, no.

MR. RAZATOS: Excellent.

DR. AMPOMAH: Commissioner Bloom?

MR. BLOOM: Thank you, Mr. Chair. Dr. Ampomah asked all my questions and more. No further questions. Thank you.

MR. RAZATOS: Excellent.
DR. AMPOMAH: Thank you.
MR. RAZATOS: Mr. Bole, I do have -- and thank you for being with us today and for your testimony; we appreciate it. I do have just two real questions. One, and forgive me; we keep mentioning the windmill. What is this windmill being used for?
THE WITNESS: The windmill is being used strictly for cattle consumption. There are published limits on what cattle can consume.
MR. RAZATOS: Okay.
THE WITNESS: We can share those if you like. The levels we've seen at the windmill are well within published standards for healthy cows so far.
MR. RAZATOS: And do you have that number? Just what do they say for cattle these days?
THE WITNESS: It's under a thousand chlorides or maybe it's TDS. One to three thousand can cause cattle to stop putting on weight. Anything over 3,000, things need to happen. So currently the water being sampled from the windmill has fallen within the U.S. agricultural guidelines for -- it's considered fresh enough for cattle to drink.
MR. RAZATOS: Okay. Thank you. I appreciate that.

THE WITNESS: I don't have an exhibit on that, but we can create one if we need to very easily online.

MR. RAZATOS: I think it would be okay unless someone has a question further on. For me, it's okay for the time being. Thank you for that information.

My second question is when Mr. Tremaine was showing you -- it is on page 170 of the 733; it is the relief map that we have there; he was asking you about potential second releases, and your statement was, "From the exact location, yes."

A second release or more; right? Your statement was, "Yes for that exact location, but for multiple locations, no."

Can you kind of elaborate on that? And I apologize I don't have all the wording that was said at that moment. I just was trying to write real quickly.

THE WITNESS: And -- and this may be a question Mr. Baker can answer as well, but as long as we have been at Apache, we've responded, I believe, to the one release that was -- affected all the soil here. No others in the general field that I'm aware of. Maybe there was a -- you know, a couple of small

wellhead leaks, but nothing that would suggest a plume of this size.

And, you know, when you -- when you do work in the oil field, again, you always see corrosion at elbows -- always at elbows. You know, that's where the turn is made and the corrosion and the erosion happens. That's our nearest elbow to all of this. And so, just logistically, if there are no other smoking guns, that's the one area that likely needs to be investigated. But again, a subsurface box full of piping.

MR. RAZATOS: Okay.

THE WITNESS: And that's -- yeah. That's what's there. Everything else is buried and never surfaced.

MR. RAZATOS: Okay, and I appreciate that. So you're saying the macro in all of the surrounding region, it's a no; we don't know. And but for that exact location, there could be a possibility of multiple releases?

THE WITNESS: Yes.

MR. RAZATOS: Okay. Awesome. Thank you. That was the only question that I had.

Any other questions for Mr. Bole? Anybody? Okay.

Mr. Bole, thank you for your testimony.

THE WITNESS: Thank you.

MR. RAZATOS: I didn't realize Mr. Moellenberg said you will stick around. Correct, Mr. Moellenberg?

MR. MOELLENBERG: Yes.

THE WITNESS: Yes. I'll be here.

MR. RAZATOS: Okay. Excellent. Thank you, so --

MR. MOELLENBERG: All righty. Yes, Mr. Chair.

MR. RAZATOS: No problem.

We'll potentially see you later on. We appreciate it.

This is a good stopping point for possibly lunch. I think if everybody is okay with that, we can come back at around one o'clock and pick up again with your next witness.

Excellent. Thank you, everybody.

(Off the record.)

MR. RAZATOS: Number 24912. Again, the application of Apache Corporation for the adjudicatory hearing to contest the Division's conditions of approval on Apache Corporation's scope of work for additional investigation in Lea County, New Mexico.

This is an evidentiary hearing.

Last that we were at, we had just finished with the first witness for Apache. Mr. Moellenberg, we'll transfer back over to you. I believe you can continue with your next witness.

MR. MOELLENBERG: Thank you, Mr. Chairman. And just as a housekeeping matter, I should move the admission of Apache Exhibits B-1, B-2, B-3, and B-4 and B, which is Mr. Bole's resume.

(Exhibits B through B-4 were marked for identification.)

MR. RAZATOS: Okay. Mr. Tremaine, do you have any issues with that?

MR. TREMAINE: No objections.

MR. RAZATOS: Okay. It will be entered.

(Exhibits B through B-4 were received into evidence.)

Mr. Moellenberg, before we start, I apologize now that I'm thinking about it. Mr. Rubin is not going to be with us tomorrow, so maybe the issue that you have we could start now before you bring on your next witness so we could kind of get that going.

MR. MOELLENBERG: Okay.

MR. RAZATOS: I don't want to get too far in and then we don't have Mr. Rubin here with us.

MR. MOELLENBERG: Fair enough. I think we can do it now. I was thinking of doing it at the beginning of the Division's case, but now is fine.

So, Mr. Chair, Commissioners, Mr. Rubin, this morning I indicated that I had a pre-hearing issue that had arisen based on some information received last night.

And it pertains to -- I'm just looking for the number -- OCD Rebuttal Exhibit 9, which consists of original conditions of approval, but also some proposed supplemental conditions of approval that I understand the Division would like the Commission to consider.

And our view is this hearing, as stated in our application, should be limited to the issue of the Division's original conditions of approval of the May 8, 2024, plan. And we have a number of concerns about supplemental conditions.

First of all, as I just indicated, we think they are outside the proper scope of this hearing. There is a question whether they are proper as rebuttal exhibits, although perhaps, you know, that deserves some further explanation to ascertain what

they are rebutting.

And perhaps most importantly, we received these late last evening. Apache has not had a reasonable opportunity to review them, consider them, prepare testimony on them, consult with people in operations who may be affected by them to really even develop a position on them for the Commission's consideration.

So for that reason, we would object to the Division's Rebuttal Exhibit 9 and the Commission's -- particularly the Commission's consideration of the supplemental conditions shown in that exhibit.

MR. RUBIN: Mr. Moellenberg, just a point of clarification; you're not objecting to Rebuttal Exhibit 8?

MR. MOELLENBERG: No. We do not object to Rebuttal Exhibit 8.

MR. RUBIN: Okay. If we could hear from Mr. Tremaine, Mr. Chair; that would probably be appropriate.

MR. RAZATOS: Yeah.

Mr. Tremaine?

MR. TREMAINE: Thank you, Mr. Chair, Commissioners, and Apache. So there's actually -- I mean, let me start out by saying, you know, we've

heard -- okay. The conditions of approval that OCD has submitted in Rebuttal Exhibit 9 are directly in response to Apache's Exhibit C.

I'm going to start off by saying that in terms of the timing, I am quite sympathetic to Mr. Moellenberg and his concern there -- the concern on the part of counsel that they certainly need time to respond. But the timing of that exhibit as a rebuttal exhibit and those proposals entirely hinges on the timing of OCD's awareness of the content of Apache Exhibit C.

And I want to clarify at the get-go that we are not implying anything with the timing of Exhibit C -- that fourth-quarter monitoring -- here. It is part of our presentation today that Apache -- I've basically said -- we felt have drug their feet on some of these steps.

But in terms of this particular report, my understanding is that the 3103 constituents came back in late December. So their Exhibit C; even though it's my understanding that the chloride and the TDS samples came back earlier, I think that we got it from Apache within a couple weeks' turnaround; right?

So they got the samples back, submitted the complete report with the 3103 constituents to OCD,

and then OCD -- that came in by email to OCD on the 8th, which is fine.

It has not been submitted, as far as I'm aware, through OCD permitting, so it's not in the well file; it was not processed as such. My understanding is that the individual received it and informed Apache to submit it through OCD permitting. We're not taking issue with that.

I'm simply lining out that there is a concern due to the timing. And so as the trailing exhibit in what are Apache's 1,391 pages of exhibits -- this is an expansive record -- OCD required some time to respond to that.

And we've been processing through all of the -- you know, all of that information, particularly the new information, which is 143 pages long, earlier this week. It came in on Thursday, and so OCD needed time to respond.

The conditions that are proposed are directly germane to the actual content of the samples and information contained in Exhibit C, so I think if I can analogize to a rulemaking, this is very much a -- would fit under, like, a logical outgrowth analysis. So it is -- they are not a part of the original conditions, but they are directly in response

to an exhibit filed by the applicant.

And when we get into the content of that exhibit, the samples show marked departures, concerning departures, from the previous samples that necessitates a different response.

So, you know, we've heard -- you heard Mr. Bole testify earlier this morning that it was inappropriate to require additional wells based on a single sampling event, but what the record shows is that we actually now have two sampling events since around the time that we were discussing these conditions of approval; the second one being this fourth-quarter report that we're talking about. And that's the one that's of the most concern to the OCD.

So while Mr. Moellenberg absolutely needs adequate time to respond to those conditions of approval, it would have been completely inappropriate for OCD to fail to respond to the concerning content of the fourth-quarter sampling event. And if there is a necessary remedy here, it's to provide an appropriate and reasonably short period of time for Apache to respond specifically to those conditions.

It is not -- as these are directly germane to the content of this hearing and application -- appropriate for the Commission to

exclude consideration of those conditions entirely.

The effect, procedurally, of excluding Exhibit 9 and not considering additional conditions that are directly in response to the fourth-quarter sampling event would be that OCD would have to then issue new conditions of approval to which Apache, presumably because they objected to the previous conditions, would appeal, and we would be back here in three to six months, past the three-year mark, talking about the same thing based on samples that were taken in October.

So on one hand, from the lawyer's perspective, I understand Mr. Moellenberg's concern and we need to make sure that they have an opportunity to respond, but I absolutely feel that these conditions are appropriate for consideration in the record and they are directly in response to Apache's own exhibit. Thank you.

MR. RUBIN: Mr. Chair, Members of the Commission, this is a difficult -- like most evidentiary issues, this could go either way, I feel.

On one hand, it is important to be mindful of not giving -- I mean, the government is always charged with presenting a moving target. In other words, this licensee thought they were appealing

one proposed set of conditions and now they have a different set. Would they have acted differently? Is there a moving target? That is a consideration.

On the other hand, there is no pre-filed testimony. There is nothing that would have prevented any of the Division's witnesses from merely testifying as to what additional conditions might be appropriate based upon the disclosure in December from Apache and what they could -- so we're just getting in written form what they could have testified to based upon what they've seen in December.

So for that practical matter, if there was pre-filed testimony, I would not be saying that, but there is not. And finally, I think what maybe should perhaps tip the balance is if it is truly rebuttal testimony in the form of an exhibit.

And Mr. Moellenberg, I know you alluded; you were sort of equivocating. I'll give you another chance. Do you believe that this at least is of a rebuttal nature to what your client filed in December?

MR. MOELLENBERG: No, I do not, and let me explain. And this -- it was helpful to hear Mr. Tremaine's explanation of that.

The exhibit provided some new

information, and obviously, the timing was unfortunate, but we felt it fair to go ahead and provide that information.

When you're looking at rebuttal, though, it's rebuttal to testimony, and obviously you have not yet heard what Apache's testimony is about this exhibit. Frankly, it's largely to give the commissioners an update with the latest available data. So for that reason, I don't think it's proper rebuttal testimony.

And if you look at the contents of the conditions, there are conditions on operations here. There are conditions that, at least based on the glance we've had an opportunity to have at them, I don't see how there's anything in the exhibit, which is basically a monitoring report, that would relate to those things or make those kinds of conditions proper as rebuttal testimony.

And finally, I would just say -- and I think Mr. Tremaine mentioned this in his opening -- a Commission order on whether or not to uphold the conditions of approval, which is the issue in this hearing, isn't going to be the be-all, end-all, final piece of this case.

As we've seen, it is kind of a moving

target because, as our folks have explained, you get information, you assess it, and then you make reasoned decisions about next steps. And unfortunately, when you're dealing with groundwater, that takes a little while. It's not an instant thing you can do.

So -- and I would just add finally, if the Commission does choose to consider these things, I think, first of all, it does raise an appeal issue. And second of all, it would be only fair to continue the hearing to allow Apache an opportunity to reasonably consider these conditions and prepare testimony to respond to them.

MR. RUBIN: Mr. Chair, Members of the Commission, I think Mr. Moellenberg makes some good -- both sides make some good points here.

The point that Mr. Tremaine makes about if we do not allow you to consider this now, it's going to come back; they will impose them -- the Division will then impose them at a later time and we'll be back here again.

But it does seem like no matter what we do here, there's going to be some additional data that's going to come down and there's going to be a subsequent appeal in all likelihood. I don't think we're going to avoid having these parties in front of

us at a later date with more data regardless.

If Mr. Moellenberg's concern about allowing more time for his witnesses to prepare a rejoinder can be accommodated -- can be scheduled, that would certainly warrant allowing the Commission to hear Exhibit 9 at this time. It doesn't sound like we're going to be completing this today anyway.

So those are my thoughts, Mr. Chair, Members of the Commission. It's not a clear-cut decision.

MR. RAZATOS: Excuse me. I'd like to open it up and see if the other two commissioners have any questions. I do have one question, but I'll start off with my co-commissioners here.

DR. AMPOMAH: Yeah, so just one. So my question to Apache is through the hearing, the Commission can also impose additional conditions as well as we see fit. I don't know if -- I think that is a possibility too; right?

MR. RUBIN: Yes, Dr. Ampomah. It is part of your statutory obligation if you feel like it is protective.

DR. AMPOMAH: Exactly. So then I don't see any problems with the -- let's say, the supplementary one because it is more or less up for

discussion, too. But definitely you might also need some time to respond to it as well. But I don't see any problem with it.

MR. RAZATOS: Okay. Thank you.

Commissioner Bloom?

MR. BLOOM: Yes. Thank you, Mr. Chair.

I think my question to both parties here would be -- it's two questions. What does more time look like? Would tonight be enough or do we need to, you know, move this to a future meeting? A future time? And -- well, let me leave it there, and I'd just like to hear what you think about that.

MR. RAZATOS: So I'm just going to dovetail on Commissioner Bloom's. That's my question as well. What does more time look like?

MR. MOELLENBERG: Mr. Chair and Commissioners, I doubt if tonight is sufficient. There's other -- I mean, given some of the scope of these conditions and operational conditions, which we've never seen before, my guess is that Apache would need to consult with some other folks who are not here.

I don't know who's available or anything else, so I don't think I could say with any comfort that we could be ready to put that case on

tomorrow. And I mean, again, as to the timing, I think there's a supposition here about there will be other appeals. I don't know that that's a -- you know, something that should be assumed at this point.

MR. RAZATOS: Mr. Tremaine?

MR. TREMAINE: So we broke down Exhibit D and drafted the conditions yesterday, which is why I noticed them last night. So our staff who are here to testify to this -- Brandon and -- Mr. Powell and Ms. Romero -- did this yesterday.

I'm not going to speak to what Apache would have to do differently on their side, but this is something that, once we got to it; saw the -- I'll let Ms. Romero testify to this later on, but the samples that came back in quarter 4 are quite concerning, so time is of the essence here, frankly.

And the -- so I think -- given our turnaround, I think we're talking about a matter of a week or a couple weeks, not months, because we do need to get some kind of resolution. It is OCD's increasing concern that there are additional potentially ongoing sources.

We just -- we will talk about this more later, but given the spacing in between all of these sample points, we can't possibly tell from these

reports where, if there are any, ongoing releases are occurring. And it's very important given how long this case has gone on to get that shortly.

So I do think we should give Apache some time to respond to that. That's simply necessary, but I think a couple weeks; no longer than 30 days. I would hope that the conditions would be able to be responded to within a week.

MR. RUBIN: Mr. Chair and Members of the Commission, I do think there is a path forward there if a week or two would be sufficient -- maybe not ideal -- to come up with -- to allow Apache to avoid unfair prejudice. That would avoid, certainly, an appellate issue. And if there is -- certainly, you know, the status quo; it needs to be resolved when there is a pending issue.

If -- especially Mr. Moellenberg, is there some -- would two weeks be sufficient to avoid unfair prejudice?

MR. MOELLENBERG: Mr. Hearing Officer, it probably depends on what happens in two weeks. I think two weeks is enough time to assess and perhaps discuss the conditions with the Division; see if we can work things out. That may be an option.

I don't know if that's enough time if

we need additional witnesses given these conditions, and I could see the potential need for an operational witness given at least one of these conditions.

So if you're speaking in terms of two weeks to return to the hearing with witnesses ready to go, I don't know that I could commit to that. I think two weeks is enough time to at least assess them and figure out what the response would be.

MR. RUBIN: Well, Mr. Tremaine said up to a month is what he was comfortable with. Is that something -- I'm talking about, like, scheduling the continuation of the hearing. Would 30 days be beyond the pale for you?

MR. MOELLENBERG: Yeah, so I mean if you set a continuation for, say, 30 days out, and then depending on what the initial assessment is, we can advise whether we need a hearing on that or not. If that's kind of what you're thinking, that may make sense.

MR. RUBIN: Well, I mean, this commission is entrusted to protect and avoid the harm that they've seen evidence of. I was thinking more of 30 days to have a hearing, not to assess.

MR. MOELLENBERG: Yeah, yeah. And actually, just to clarify, my answer really is the

same. I think if you set a continuation of the hearing 30 days out, that should be enough time to identify and get witnesses present. We might just have to have a little flexibility, you know, date-wise, for scheduling purposes. But again, we can put people on remotely, too, I suppose, so --

MR. RUBIN: Mr. Chair and Members of the Commission, I would recommend based upon what we've heard from Apache's counsel that it would be probably in an abundance of caution to allow -- to hear what we can hear today and then have a hearing no later than at approximately 30 days out. That would avoid the argument on appeal that they have been unfairly prejudiced.

MR. BLOOM: Mr. Chair?

MR. RAZATOS: I see your hand, Commissioner Bloom. I was going to turn to you.

MR. BLOOM: Yeah, I don't want us to get too far down the road here. Is there a possibility that Apache's response could result during this time in the production of more material that would require a response from OCD? And if so, how would we account for that?

MR. RAZATOS: Forgive me, Commissioner Bloom. I didn't quite get the question. Can you

repeat it?

MR. BLOOM: Sure. So what are we expecting from Apache afterwards and could there be production of material from Apache that would require a response from OCD or that OCD would like to or feel obliged to respond to?

MR. RUBIN: Commissioner Bloom, Members of the Commission, I think what we've heard is that there won't be any additional facts. We won't have any more data in 30 days and it's just going to be what the parties are arguing should be done with that data. So I think that should alleviate the concern of what OCD may need to respond to. I think once we -- now that all the data is in, I think there's a -- that we can have a finite point.

MR. RAZATOS: Did that answer your question, Commissioner Bloom?

MR. BLOOM: It did. Thank you.

MR. RAZATOS: Okay. So I believe, Mr. Rubin, as you mentioned it, and I believe this is what I'm hearing from the parties, that we hear the case as far as we can while we're here now and then continue the part that would include this Exhibit 9 until Apache had time to be able to get a response and any human resources that would need to be used for a

response. Is that what I'm understanding?

MR. RUBIN: Mr. Chair, yeah; that is my understanding as well. And we would, hopefully, be able to, while everyone's here, schedule that additional day of hearing within, again, about 30 days out so that the parties have that time. That would certainly spur whatever negotiation they need to have between them in the interim.

MR. MOELLENBERG: Okay. So just -- and, Mr. Rubin, this is more directed to you -- procedurally, we just take the case all the way up until this exhibit or do we stop after Apache provides all of their information and then pick up again with the OCD at the later date?

MR. RUBIN: That is a very good practical question, Mr. Chair. Certainly, Apache's case is not -- was premised upon what they've already had as proposed conditions by the Division. So if they feel like they can put on their case now to the extent they can, we should defer to them to the extent they're comfortable with it.

And then as to the witnesses of the Division, to the extent they can lay some testimony down that is not contingent upon this new information and upon the additional permits of the conditions

they're proposing, we should get that done as well. And we'll take it as it comes, and I think the parties could probably sort out what should happen now and what should be left for the -- for the next day.

MR. RAZATOS: So then we'll switch it over to you, Messrs. Moellenberg and Tremaine. Do you think you can continue with the case up until now, until we -- you know, we cover everything that we were planning to outside of this Exhibit 9, and then pick up with Exhibit 9? How do the parties feel?

MR. MOELLENBERG: Well, let me bring in another consideration, and that is whether we should plan on going through tomorrow. My expectation at this point in time is that we can probably get through our case pretty easily today, but it really depends, probably, on the cross-examination and the Commission questions.

If that happens, perhaps we're at a logical starting point to pick up with the Division's case in a second piece. I mean, that might be one thing to consider.

The other thing I was thinking about when Commissioner Bloom was raising his question is just sort of some procedural options; you know, maybe like a status report and a supplemental pre-hearing

statement a week before -- you know, due a week before we start up again, which I think was consistent with your rules and I think addresses the question about -- okay -- what new witnesses and evidence may come in and the Division having some time to prepare for that.

MR. RAZATOS: Okay.

Mr. Tremaine?

MR. TREMAINE: I think that Mr. Moellenberg does identify a logical breakpoint, and I don't want to be overdramatic here, but I do need to emphasize the urgency that is the basis for why OCD responded with additional conditions.

If we became aware of samples taken in October in another context that showed these chloride levels and there was no complete delineation from an operator in January, we would be probably talking about issuing a notice of violation for various different aspects of Part 29.

And I think that what we want to present to the Commission if possible this week is our concerns with that Exhibit C because it can be interpreted to imply there are additional if not ongoing releases. And there are immediate response requirements that trigger once there is documentation of such a release, and we're not aware of any

immediate containment actions taken by Apache here.

So I do understand we may have some difference of opinion as to what some of that data says, and I think it's the Division's preference, if we could, to present the Division's testimony even if we have to go into tomorrow so that we've set the stage. And then I will happily agree to let Apache come back and reopen their case in response to that Exhibit 9.

MR. RUBIN: Mr. Chair, Members of the Commission, I think you've heard it from both sides that we'll sort of take what we can now, leaving open this additional day for what needs to come after and if there is some additional -- I'm sorry.

Mr. Tremaine?

MR. TREMAINE: Sorry. Another wrench for the works. If we schedule this out 30 days, I just want to remind the Commission and all parties that we are stacking this right on top of Goodnight, which is going to be quite a full week. I'm not in that, but in terms of scheduling, the specter of adding another day of hearing in February is daunting, so please consider that.

MR. MOELLENBERG: And I would like to just interrupt as well.

Commissioner Bloom, I know I see your hand. Give me one second if you don't mind.

It's also smack-dab right in the middle of session, and I do know Commissioner Bloom, myself, probably also Dr. Ampomah -- no?

You don't have to deal with the session? Oh, you're lucky.

We'll have that to balance as well in there, so we want to be cognizant of that.

Commissioner Bloom, I'm sorry. Go ahead.

MR. RAZATOS: Commissioner Bloom, we can't hear you.

MR. BLOOM: Thank you. I was just going to flag what Mr. Tremaine raised, which is five weeks from now on the 20th, we're beginning the Empire Goodnight midstream case.

I think the 13th -- Thursday the 13th puts us four weeks from today, so as we're -- I don't know if we want to talk dates now, but perhaps as we're moving here, people can look at their calendars and think about the 13th and 14th.

Yes, the legislative session is going to be an obstacle. I mean, I'm running our signature piece of legislation and I don't know if I'm going to

have to pop out at times or find somebody to cover or how we're going to handle that, so there's kind of a lot at play.

MR. RAZATOS: So -- and Commissioners, please, by all means, step in as well -- I'm going to make the suggestion that we keep going with this case as far as we possibly can and making sure that Exhibit Number 9 is definitely -- the rebuttal exhibit from OCD is definitely kept on the side back burner and maybe not commented upon until we have the ability for Apache to make a response and to get the necessary response for that.

So my suggestion is that we continue with Apache's part today; if it spills into tomorrow, go into tomorrow; pick up with the OCD -- the Division; let them say what they need to say up until the point where we come to this rebuttal.

And at that point, I think -- and we may just have a natural break in witnesses at that point as well, where we just then pick up at a later date within a month, within those 30 days.

Counsels, how do you feel about that?

Or, Mr. Rubin, is that okay?

MR. RUBIN: Mr. Chair, the one question I have; is there a way to change on the ground what

the status quo is right now so that the time is not of the essence?

MR. RAZATOS: Mr. Moellenberg, your microphone, please.

MR. MOELLENBERG: Sorry.

Mr. Hearing Officer, funny you should say that because we were just consulting about that idea. I would suggest -- I think we would be happy to discuss that kind of approach with the Division given some of the timing exigencies here. And there may be some things that, as between the Division and Apache, we could agree to go ahead with and, as you say, change the status quo and move forward on some things.

And, I mean, Apache's not -- in fact, I think there are some things Apache would rather get in and do. You have the issue of one mobilization versus two, perhaps, but anyway, I think that's something we would be interested and willing to take up with the Division and, you know, perhaps at a break or something see if we can get anywhere with that.

MR. RUBIN: That would be wonderful to have that in place or at least know what those discussions amount to if they were fruitful before the end of tomorrow because you can't put it back in the pipe if it comes out, of course. We all know that.

Okay. Thank you.

MR. RAZATOS: So, Mr. Rubin, are you suggesting that we take a break so that the two parties -- I apologize. I didn't understand at all, so --

MR. RUBIN: Well, if -- Mr. Tremaine isn't here in person, but if Mr. Tremaine and Mr. Moellenberg feel like they can talk for a few minutes and -- I mean, that's kind of spur of the moment.

MR. MOELLENBERG: It is kind of spur of the moment. My suggestion is why don't we get at least the two Apache witnesses on?

And then perhaps that's a good time to take a break, and Mr. Tremaine and I can consult about perhaps the best way to proceed at this point given both the time exigencies and, you know, not causing too much confusion and difficulty during the hearing because there could be delays as we sort of get to the "Okay; what should we go ahead with and what should we not?" You know, those kind of procedural things, so --

MR. RAZATOS: Mr. Tremaine?

MR. TREMAINE: I concur. It's going to be challenging to transition to that -- take a break. I think we should get through what Apache can fit into

today, and then we'll plan to start tomorrow. But I'm happy to fit in a conversation there, even if it extends into figuring out responsive actions and talking through some of that data in Exhibit C at the beginning of next week.

I think that's still much more preferable to kind of just, you know, punting a prospective resolution into late February. So we're more than happy to engage in that, and we may -- I think from what I'm hearing today, we may be able to find some alternative middle ground for response actions.

So we'll try for that tomorrow or at the earliest day possible and commit to getting an update. If we can handle any outstanding immediate response concerns under Part 29 in the next, you know, week or two, then OCD may well be agreeable to revising our position or scheduling the follow-up hearing after the Goodnight Empire matter, which would give everyone some breathing room.

MR. RUBIN: Okay. Commissioners, are you okay with that?

Commissioner Ampomah?

DR. AMPOMAH: Yes.

MR. RUBIN: Commissioner Bloom?

MR. BLOOM: Yes.

MR. RAZATOS: Okay, so what do we need to do procedurally? We could just continue from here?

MR. BLOOM: Yes. Mr. Chair and the Commission, I think we should proceed forthwith.

MR. RAZATOS: Okay, so then, Mr. Moellenberg and Mr. Tremaine, you guys will talk at a later point.

So let's continue with the case. Mr. Moellenberg, you can then call your next witness.

MR. MOELLENBERG: Thank you, Mr. Chair, Commissioners. Apache calls Mr. Larry Baker, and I don't know if we'll be using first names, but Mr. Baker goes by Bruce, so --

MR. RAZATOS: Okay. Mr. Baker, if you'll come right up here and sit down, and our court reporter will swear you in. And please don't forget to turn on the microphone.

Go ahead. We could swear him in. He's ready to go.

I think our court reporter is having some technical issues, so give us -- there you go.

Nope. You just muted yourself. Unmute again. There you go.

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WHEREUPON,

LARRY BRUCE BAKER,

called as a witness and having been first duly sworn to tell the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

MR. RAZATOS: Excellent, thank you.

The witness has been sworn in. Mr. Moellenberg, please.

MR. MOELLENBERG: Thank you.

DIRECT EXAMINATION

BY MR. MOELLENBERG:

Q Mr. Baker, would you please state your name and current address?

A Yes, my name is Larry Bruce Baker. I currently reside in Midland, Texas.

Q And on whose behalf are you providing testimony today?

A Apache Corporation.

Q Did you provide a written resume showing your educational and employment history and experience for purposes of this hearing?

A Yes.

Q And was a copy of your resume to your knowledge per the Exhibit A for this hearing?

A Yes.

Q Do you have any updates or corrections to the written resume?
A Yes, I do. The only change is in my employment history. I was let go by Apache at the end of 2024, so I'm no longer employed with -- at Apache Corporation.
Q Okay. Thank you. Mr. Baker, would you please give us a brief description of your educational history?
A Yes. I have a Bachelor of Science degree from Eastern New Mexico University in wildlife fishery science, and a Master of Jurisprudence from Texas A&M in -- with an emphasis in energy and environmental law.
Q Thank you. And can you briefly summarize your employment history and work experience?
A Yes. I began working in southeastern New Mexico in 2007 for Rice Operating Company as an environmental technician. I later was -- went to work with Rice Consulting & Safety as a project manager for -- for consulting purposes and began my job at Apache in July of 2013.
Q And your last position at Apache was -- what was your title?
A I was a -- a senior environmental

specialist.

Q Okay. And do you recall about when you took that position on?

A I want to say it was in 2024; I believe. Maybe first quarter, but I'm not a hundred percent sure.

Q Okay. Was -- well, let me ask you to describe your responsibilities as a senior environmentalist specialist, and maybe just so we reach back and cover the time period that we're interested here, tell us if your responsibilities were different, let's say, from 2019 to 2024.

A I -- I would say no. I -- I've always been tasked with handling soil remediation for Apache and spills with the -- with the Division since -- since my employment at Apache. So the specialist role may have led to some other things that I got involved with, but as for purpose of this hearing, I don't -- I don't think -- my role didn't change with the title change.

Q Thank you. Can you give us a rough estimate of the number of contaminant delineation projects you've been involved in during your career?

A That one's a hard one. I -- I kind of -- I kind of figured it up. I'm comfortable with saying probably over 250, but that number could be larger

because, like I said, I've been doing this since 2007 in -- in southeastern New Mexico.

Q What is your knowledge of the East Blinebry Drinkard Unit, or EBDU, Number 37 well?

A My knowledge is the well is located in -- in the Eunice area in Section 13, Township 2137, and is associated with an injection well.

Q And what kind of injection well? Can you describe that a little further?

A I -- I --

Q Is it saltwater?

A I believe so. Yes, sir.

Q Okay. And is there also a pipeline associated with the well?

A Yes, sir.

Q Okay. Are you familiar with a release that occurred along a pipeline near the EBDU Number 37 well in July of 2019?

A Yes.

Q And what was the approximate location of the release?

A The -- the release happened at the junction box approximately 700 feet east of -- of the well site.

Q Okay. And what was your involvement

regarding the reporting of the release and the immediate response?

A I -- I was notified by production and EHS that a -- a release had occurred. I -- I believe I notified the agency because of the -- the volume. That would be typical. And then we followed up. I believe at that time my direct report filed the C-141 and -- and then we went into the delineation phase.

Q And is the C-141 filed for this proceeding as Apache Exhibit A-1?

A Yes, sir.

Q Does the C-141 identify the volume of liquids released?

A No.

Q And can you explain a little further why that is?

A When -- when the spill was reported to me, there was a volume. Upon -- upon reviewing the site and getting a better look at it, from my perspective, it was obvious that that spill volume was not -- not close or even correct at the time of reporting it.

It would have been hard without -- you know, we had to go through some one-call notifications and things of that nature to start gathering data, and so I felt it would be better to call it unknown because

that would put us into a higher stringent level of delineation, and I felt like that was appropriate.

Q So after or perhaps during the reporting of the release, did Apache take some immediate actions in response?

A Yes. I can -- I can speak to that. We did. We were very concerned at that low-lying area. That was -- that was priority, and I was concerned at that time 'cause I did not know the depth to groundwater and we knew the well was there.

And so we -- we took immediate action, I believe in July of that year, to try to assess that situation and see what we had. And -- and I believe we started excavating in the playa relatively shortly after the release occurred.

Q Okay, so after the reporting of the release and maybe the initial actions, did Apache prepare a remediation plan for submission to the Division?

A Yes.

Q And do you recall who actually prepared the written plan?

A Larson & Associates prepared the plan. I reviewed it and submitted it; I believe.

Q Okay. And is it your understanding that that remediation plan was submitted as Apache Exhibit

A-2 with Apache's pre-hearing statement?
A Yes.
Q Can you briefly describe the contents of that remediation plan?
A The remediation plan was to address -- was basically a 4-foot dig in areas -- the upper portion of it to install a 20 -- 20-mil reinforced liner. We were going to gather sidewall samples every 200 square feet, and we had a proposed clay liner originally for the -- the low-lying area. That -- that's what Larson & Associates proposed.
Q Okay. Do you recall if the remediation plan itself contained any groundwater quality information?
A Yes, I believe -- I believe so.
Q Do you recall if it contained any information on water quality samples taken from the windmill?
A I -- I can't recollect at this time.
Q Okay, fair enough. So did the Division review and approve the remediation plan?
A Yes.
Q And do you recall any consultation with the Division about additions or changes to the remediation plan?
A I -- I don't remember any changes, although

I do think there was some conditions of approval and -- and if I'm -- if I'm correct, they -- they asked for two more wells to be installed.

Q Okay. And do you recall an addendum to the remediation plan that addressed those two additional wells?

A I -- I can't recollect the addendum.

Q Okay. Do you recall us discussing an Apache Exhibit A-3, which is an email from Mark Larson to Bradford Billings dated December 23, 2019?

A I -- I'm sorry. I can't.

Q Okay. Okay. We'll come back to that at the end and maybe I'll -- if you could be ready to pull that up.

What was your involvement in the implementation of the remediation plan?

A I -- I -- my involvement, typically, in -- in remediation is getting -- getting the contractors established, consulting, reviewing. I basically oversee it as a company representative -- the -- the work -- and -- and make sure it's done in accordance with the plan.

Q Okay. Did Apache complete the work required by the approved remediation plan?

A Yes.

Q And do you recall around the timeframe of when that work was done?
A I want to say it was around September 2020.
Q And do you recall a document where the Division approved Apache's completion of the backfill operation during that excavation process?
A Yes.
Q And do you recall, for example, that being an email from Mr. Billings at the Division to Mr. Larson around September of 2020?
A Yes.
Q And did we discuss that being Apache Exhibit A-6?
A Yes.
Q Okay. After the plan was implemented, did Apache prepare and submit a closure report to the Division?
A Yes, for -- for the soil remediation.
Q Okay. And do you recall the date of the closure report?
A I -- I think it was dated December 2020 and was filed in February of 2021; I believe.
Q Okay. And to your knowledge, was that closure report provided by Apache as Exhibit A-5 to its pre-hearing statement?

A Yes.
Q Did the Division review and approve the closure report?
A Yes.
Q Did the approval of the closure report conclude all of the matters relating to the release?
A I would say no.
Q Okay. And, for example, did the closure plan itself commit to additional quarterly groundwater monitoring?
A Yes.
Q And do you recall how many monitoring wells were in place or to be installed and monitored per the closure-plan requirements?
A I believe originally there was two, and then at some point we put in two more. That would have probably been part of the closure plan.
Q Okay. Was Apache's response to the release, including the preparation and implementation of the remediation plan, consistent with your experience with other projects performed in New Mexico under Division supervision or oversight?
A I would say yes to that. I -- I use the same tactic and approach that I have on almost every project that -- that I've done since 2013. However,

there was a little bit of speed-up in that low-lying area to -- to try to -- to gain a better understanding early on.

Q Okay. Mr. Baker, does that conclude your direct testimony or do you have any other things you'd like to add?

A No. I think that concludes.

Q Okay. Would you be available in the event that we need to have you comment on the Division's witnesses' testimony?

A Yes, sir.

Q Okay. Mr. Baker, I moved on past an email we mentioned, but it's -- we're going to pull that up here; I believe. Yeah.

MR. MOELLENBERG: Is that okay if we pull up the Exhibit A-3 here and allow Mr. Baker to take a look at it?

MR. RAZATOS: Yes.

Sheila, can you give Ms. Catalano, please, control?

BY MR. MOELLENBERG:

Q Okay, Mr. Baker, let's see if we can scroll to the top here. Do you see an email on your screen from Mr. Larson dated December 23rd of 2019, to Mr. Billings?

A Yes, sir.
Q Okay. And does seeing this information refresh your recollection of some of the discussions between Apache and the Division regarding the remediation plan and some additional work?
A Yes, yes. Okay. I -- I'm -- I'm getting my dates confused. This -- this was an addendum to the remediation plan prior to approval -- okay -- or maybe after approval. So yes, I'm -- I'm familiar with this.
Q Thank you. And to your knowledge, was this included as Exhibit A-3 to Apache's pre-hearing statement?
A Yes, sir.
MR. MOELLENBERG: Okay. Okay. So at this time, I would move for admission of Apache Exhibits A-1, A-2, A-3, A-5, and A-6.
(Exhibits A-1 through A-3, Exhibit A-5, and Exhibit A-6 were marked for identification.)
And we didn't cover A-4? Okay.
MR. TREMAINE: We will cover it later.
MR. MOELLENBERG: Okay.
MR. TREMAINE: And A.
MR. MOELLENBERG: I'm sorry. And A,

which is the resume.

(Exhibit A was marked for identification.)

MR. RAZATOS: Okay. Mr. Tremaine, do you have any objection to that?

MR. TREMAINE: No objections.

MR. RAZATOS: Okay. It'll be entered.

(Exhibits A through A-3, Exhibit A-5, and Exhibit A-6 were received into evidence.)

MR. MOELLENBERG: Okay. Mr. Chair, this witness is available for cross-examination.

MR. RAZATOS: Okay. Excellent. Thank you.

Mr. Tremaine?

MR. TREMAINE: Thank you, Mr. Chair, Mr. Moellenberg. I have some questions for Mr. Baker. I'll be much more brief than we were with Mr. Bole this morning.

CROSS-EXAMINATION

BY MR. TREMAINE:

Q Good afternoon now, I guess, Mr. Baker. I want to ask you; do you recall the testimony this morning in which we were examining a map of chloride contaminations in groundwater from December of 2023?

A Yeah, there -- there was many maps, so yeah. Maybe.

Q Sure. I'm going to just direct you in a minute. I'd like to share my screen and refer to Apache Exhibit B packet, page 170 of 733. This was the map I was just referring to reflecting the area for which we had groundwater monitoring wells in December of 2023. Would you agree with that?

A Yes.

Q And you were with Apache at that time; correct?

A Yes.

Q What was your last date with Apache?

A 12/31/2024.

Q Okay. Thank you. Are you generally familiar with Apache's operations in the East Blinebry Drinkard Unit as reflected on this map?

A Somewhat. I'm -- I'm familiar with the area. My role is not -- is not really in production, so I'm familiar with the landscape, but maybe not at a technical level as -- as a production engineer or something of that nature.

Q Okay. If I said that it was OCD's understanding that all of the well pads or wells represented on this map were all operated by Apache,

would you have any reason to disagree with that?
A No. I think -- I think that would be a fair statement. I -- I wouldn't -- I don't know that I could say all of them, but I -- I would agree that a large portion of them would be.
Q As of the time that you departed from Apache, are you aware of any of the wells or any associated facility that would be present as depicted on this map having been potentially transferred, sold, or assigned to any other operator?
A Yes.
Q Is the East Blinebry Drinkard Unit Number 37 -- has that been sold to another operator?
A That would be my understanding.
Q Has Apache -- when would that assignment have occurred?
A My understanding the closing of that would have been at the 12/31/2024, my last day at Apache.
Q Okay. Are you able to tell us and the Commission what operator is going to be taking over operation of the EBDU Number 37?
A I'm not sure. I'd -- I'd like to -- I would have to -- I'm -- I -- I don't know that I -- if I have a legal obligation or not. I would have to -- I would have to look into that.

Q That's fine, Mr. Baker. Thank you. Thank you for that. I think we have what we need. Do you agree with the earlier testimony that chlorides do not naturally break down in the environment?

A Yes.

Q All right. I'm going to move back now to your exhibits if I could direct you to page 16 of your Exhibit Packet A -- 16 of 515. Would you agree with me that -- well, do you recognize this document, Mr. Baker?

A Yes, sir.

Q And this is the initial C-141 regarding the release that you identified to and previously testified about; correct?

A Correct.

Q Would you agree that on this document when you filed it, you marked that at the time there were not observed impacts to groundwater? Let me rephrase that question. I apologize. There's double negative. When you filed this document, did you or Apache indicate that there were impacts to groundwater?

A I -- I would say that at that time, I wasn't -- it wasn't definitively clear. I don't feel that --that as the project -- I don't think I've -- at any statement that I've made in -- in this process

that I was not concerned about the possibility of groundwater being impacted, but I don't know that it was definitive at the time of this paperwork being filed.

Q Understood. So would you agree that the data from subsequent groundwater monitoring has necessarily changed that analysis that there may be impacts to groundwater since the time this was filed?

A I would say that yes, the data -- the data shows that.

Q And you may have heard earlier today some testimony regarding the -- questions and testimony regarding the approvals sent by Mr. Billings to -- to Apache regarding the C-141s and remediation plan.

I don't want to belabor going through those exhibits, but would you agree consistent with that prior testimony and exhibits that each of those approvals from OCD clearly indicated that Apache would have ongoing liability for remediating the release if their operations and plans fail to adequately investigate and remediate contamination that may pose a threat to groundwater?

MR. MOELLENBERG: Object to the extent it calls for a legal conclusion.

MR. TREMAINE: I disagree. I'm simply

asking Mr. Baker if he agrees to the content of the emails notifying -- like the actual language and email notifying Apache of their ongoing liability.

MR. RAZATOS: Can you rephrase it for him, Mr. Tremaine?

MR. TREMAINE: Sure.

BY MR. TREMAINE:

Q Well, maybe what I want to do is just go back to the Exhibit 6. So we've discussed this in our context earlier. Mr. Baker, I'm directing you to page 426 out of 515 of Apache's Exhibit Packet A. Are you familiar with this email?

A Yes, sir.

Q And do you agree that the language I previously quoted is present in this approval and notifies OCD of its ongoing liability?

A In -- in my experience, that -- that -- what you're referencing there would be in every approval letter that I've -- that I've received. That's pretty -- pretty -- a custom with -- with many projects I've worked with. So it's -- it's kind of a stamped thing, so yes.

Q So it's fair to say that OCD consistently has notified you, in your experience, that if the information changes that you as the operator may have

to go back and do additional work, additional remediation, additional delineation; is that fair?

A Yeah. Yes. I -- I would say it's fair if -- if more data comes along that we have an obligation to -- to address the situation or, better yet, investigate the situation.

MR. TREMAINE: Thank you, Mr. Baker. Give me one second. I think I'm done. And I am done with my cross-examination. Thank you, Mr. Baker, for your time. We appreciate it.

MR. RAZATOS: Mr. Moellenberg, did you have any redirect for --

MR. MOELLENBERG: No. No redirect.

MR. RAZATOS: Okay. Excellent. Commissioners, we'll start with you, Commissioner Bloom. Any questions?

MR. BLOOM: Mr. Chair, no questions. Thank you.

MR. RAZATOS: Okay. Dr. Ampomah, any questions?

DR. AMPOMAH: Yes, I do have some quick ones.

Mr. Baker, so you said that at the time of the first release you had a fair idea on the volumes, but you decided to report "unknown." Can you

share with the Commission what was the volume if you can?

THE WITNESS: Let me -- let me look. I -- I don't know the exact number off the top of my head, but it would have been -- it would have been under a hundred barrels with some recovered. That was the initial reported to me from -- from the production team in the field. After further analyzing the -- the situation, I realized that I really had no idea what was lost.

DR. AMPOMAH: Okay.

THE WITNESS: And so I felt like it was the appropriate stance to be put into that more stringent criteria of delineation in regards to OCD requirement. And that -- that's why I'd marked it as unknown.

DR. AMPOMAH: Okay, so in your remediation plan -- the delineation and remediation plan -- Apache decided to drill two monitoring wells: the one on top and then the one on the south?

THE WITNESS: Yes. We -- we were concerned about the -- the windmill, and -- and that -- I believe that happened pretty early on. And so we did TM-1. We wanted to see if we had any migration 'cause we wanted to do our best to protect

the landowner's windmill, you know, and that -- that was the purpose of that.

And then we -- you know, we put an upgradient well to try to see if -- see if we could get an idea of if -- if there was some background, which would be typical. But it -- it was a -- it was a safety measure to see if we were starting to impede on the -- on the landowner's well.

DR. AMPOMAH: So the first two wells -- the first two monitoring wells; that was more or less initiated by Apache?

THE WITNESS: Yes. I believe so.

DR. AMPOMAH: So aside the two wells that Apache initiated in the initial plans, I want to know; was there anything else that was initiated by Apache other than the Division more or less directing Apache to drill more wells?

THE WITNESS: To -- to answer your question, we did a lot of work in that time period. That -- that was -- we did -- we -- I believe we -- we did a pretty large excavation in the low-lying area, the playa. I don't -- I'm not a hundred percent sure if it's playa or not, but it's been referenced that way.

And I believe we dug that to 10 -- to

10 foot. I wanted to get that out of there. We hauled that off. That was -- that was initial.

The -- the landscape of that area; there was a lot of mesquite, and it was hard to -- to get into it and access the -- the entire spill area, and it was in kind of a sandy condition. So we -- we tried, I believe, multiple approaches.

We tried backhoe delineation to see the depth. Eventually, we brought in some soil bores. We had a soil-bore machine to try to determine groundwater. We -- we did a lot of things where we could get access to it.

And -- and when we implemented the remediation plan, it was acknowledged that the forefoot -- that -- that there was -- it was significantly deeper contamination. And -- and the -- the attempt there was to -- to protect groundwater. And if we can get to the forefoot, get the liner in -- that -- that I've done many times with -- with the agency and -- and multiple spills before.

And so, answering your question, we -- we did do a lot of delineation and understanding. Originally, we thought the depth to groundwater inside the playa was a lot shallower than it -- it turned out to be. And so initially, I -- I got some bad data.

One drilling company said, "We think it could be 15 feet," and that's why we started digging to 10. I wanted it out of there.

Once -- once we got a better understanding that it was deeper than that, we were getting more in the 40s -- you know, we -- that was already dug out, we started taking a more, you know, logical approach and trying to understand it, you know, if that -- if -- go ahead.

DR. AMPOMAH: Oh, well, so are you saying that Apache is doing multiple wells in this area -- let's say injection wells in the area; is that correct?

THE WITNESS: I'm -- I'm not -- I'm -- I'm referring to the spill.

DR. AMPOMAH: No, I'm saying that I'm asking if Apache owns some production or, let's say, injection wells around that area.

THE WITNESS: Yes, that would be correct. They -- they would be -- they would be -- how can I put it? They might be injection; they might be producing.

DR. AMPOMAH: Exactly.

THE WITNESS: It -- it depends.

DR. AMPOMAH: So is it not surprising

when Apache says that we do not know the underground source of drinking water? I mean, you have wells in the area. So you don't know the depth of the underground source of drinking water?

THE WITNESS: That -- that's a valid question. I have never been able to look at a -- a drilling log and determine that definitively. Now, there might be a way to do that; I'm just not aware of it.

DR. AMPOMAH: Okay, so I'm trying to get to a point where I can fully understand. So based on the cross on the first witness, so NMOCD established that if it was not the intervention of asking Apache to drill multiple monitoring wells, we wouldn't know the extent of the contamination; is that a fair statement?

THE WITNESS: I would say that's a fair statement. I would also like to -- so the original scope -- we got the remediation plan; we installed the four wells. We submitted that data to -- we got the plan approved; we submitted to OCD; they closed it; we continued monitoring the four wells.

At a later date, the agency came back to me and asked that -- to reevaluate the situation, in which I accommodated them, and that's how we got to

the more wells. But at that time, I had no reason other than them inquiring that we were still monitoring and trying to see where it was going.

So -- so that would be a correct statement, but I just want to be clear on that; the dynamic that changed was -- was not internal from Apache. That -- that was OCD asking us to -- to look into it further, in which -- in which we accommodated them and led to a -- realizing there's a larger problem.

DR. AMPOMAH: Yeah, so before you left Apache, do you believe that the extent of this contamination -- the delineation -- is really, really accurate now?

THE WITNESS: I -- I would say this 'cause I'm not a hundred -- when I look at it from my perspective, from the soil-remediation standpoint, the surface blueprint of this spill; we had a good understanding of the lateral extent because of all of our clean well data, which we collected a lot of samples; I knew we had a problem with depth.

So the question you're asking me; it depends on if I believe that the current situation is absolutely 100 percent being contributed from this spill. I cannot answer that. I can't say it isn't,

but I can't say it is because my data doesn't suggest that.

DR. AMPOMAH: Well, so are you suggesting that there could be something that might have happened not necessarily from this hundred-barrel spill that really more or less went on? It could be something more deeper than that?

THE WITNESS: I -- I would have to -- I -- I don't know that. Part -- part of the reason the team recommended the soil bore towards the -- the junction is that was the one area I felt like I might have a lack of delineation with depth. And that would give me a lot of information to see if -- if the current situation is more directed to this release or another issue to -- to explore.

DR. AMPOMAH: So from all the testimonies that we've heard today, I'm not sure if we fully understand the extent. You know, if you look at the well 23 -- the TMW-23, TMW-24 -- and leaving all the -- some of the other wells, there is still some contamination there. So I'm not sure if Apache can really defend that the situation has been contained.

THE WITNESS: I -- I could see that argument.

DR. AMPOMAH: So if you can see the

argument, then I want to know. So, then, based on the earlier testimony, it sounds like NMOCD is asking for about 40 wells total. So now you have about 23 or so -- 24. They are asking more to about 40. And I don't know if it is the next witness who will be showing me the map. It is the next witness; right?

MR. MOELLENBERG: The next witness, yeah.

DR. AMPOMAH: Okay. Let me pause here. Thank you. Thank you.

But one more I just want to ask you. So based on what we know now, do you believe that the initial remediation plan was effective?

THE WITNESS: I do.

DR. AMPOMAH: And successful?

THE WITNESS: I -- yes, I do.

DR. AMPOMAH: Okay. Thank you.

MR. RAZATOS: I -- sorry. It keeps on going; right? I just have one question to dovetail off of Dr. Ampomah's. Do you think the remediation plan is sufficient?

DR. AMPOMAH: Oh, yeah.

THE WITNESS: From my experience, it -- that's -- that's -- there -- there's definitely a problem going on at the subsurface.

MR. RAZATOS: Okay.

THE WITNESS: We -- we have chlorides there. Do I think from the spill and the footprint that I saw and the liner that I installed should have addressed any further contaminant getting to the groundwater table? What happened at the time of the event? That's speculation. I don't know how much 'cause I don't know how much was lost.

But with that being said, do I think the liner in place is adequate? I would say yes. And my -- my assumption is the -- the chlorides we're seeing in the water table; if they're coming from that release, they probably happened before the remediation occurred.

MR. RAZATOS: Okay.

THE WITNESS: That would -- that would be my guess.

MR. RAZATOS: Okay. Thank you.

I have no further questions. Anybody have -- Mr. Moellenberg?

MR. MOELLENBERG: Nothing further.

MR. RAZATOS: Mr. Tremaine?

MR. TREMAINE: Nothing further.

MR. RAZATOS: Okay.

Mr. Baker, thank you so much. We

appreciate it. Thank you.

Before we call your next witness, do we need a break? Yeah, I think we need a -- let's take a ten-minute break. We can come back at around 2:30. Excellent. Thank you.

(Off the record.)

MR. RAZATOS: Sorry for the delay. We're back on the record.

Mr. Moellenberg, I think we're ready for your next witness. Turn your microphone on. Sorry.

MR. MOELLENBERG: Yeah. I'm -- hard to create new habits.

Mr. Chair, Commissioners, Apache calls its next witness, John Grams.

MR. RAZATOS: Mr. Grams, if you'll come have a seat, please? If you'll turn on your microphone, and then our court reporter will swear you in.

MR. GRAMS: All right.

WHEREUPON,

JOHN GRAMS,

called as a witness and having been first duly sworn to tell the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

MR. RAZATOS: Excellent. Mr. Grams has been sworn in.

Mr. Moellenberg, please.

MR. MOELLENBERG: Thank you, Mr. Chairman.

DIRECT EXAMINATION

BY MR. MOELLENBERG:

Q Mr. Grams, would you please state your name and business address?

A Yeah, John Grams. I'm at 5847 50th Street in Lubbock, Texas.

Q On whose behalf are you providing testimony?

A Apache Corporation.

Q And what relationship do you have with Apache?

A My company, Terracon, has a consulting agreement with Apache, so I'm a consultant to Apache.

Q Okay. I think we covered this, but would you just briefly talk about the timing of and circumstances under which you and your firm were engaged to consult with Apache on this project?

A Yeah, so I began -- I became involved in late July, August of 2024. I think earlier someone had commented Larson & Associates went out of business, and the project was handed to Terracon at

that time.

Q Okay. Did you submit a written resume describing your education, work history, and experience for this proceeding?

A Yes. I did. I believe it is Exhibit C.

Q And to your knowledge, is that exhibit current and true and accurate?

A Yes.

Q Would you briefly summarize for the commissioners your educational history and technical qualifications?

A Yeah. I have a bachelor's degree in geology and a Master of Science in geology. I'm a registered professional geologist in the states of Minnesota and Texas.

Q Okay. To your knowledge, does New Mexico have a registered geologist program?

A No. I don't believe it does.

Q Could you please summarize your past employment history?

A Sure. I began consulting 1988 as a field geologist doing groundwater and soil investigations, sampling wells, sampling soil, drilling wells -- that kind of thing. After four years, I went to Amoco Oil Company and worked for Amoco BP for seven years,

mostly in compliance -- a few other roles.

Then I returned to consulting, and for the past 25 years I've been doing various consulting assignments: mostly site investigation, remediation, soil, groundwater, emergency response kind of work.

Q Thank you. Could you please give us a little additional description of your experience and qualifications as it relates particularly to groundwater contaminant delineation?

A Yeah. I've worked on literally hundreds of projects over the years -- you know, the past 30-some years -- in a capacity ranging from, as I say, a field geologist executing the work in the field to project manager directing the work, and more recently, more as a project director providing senior oversight.

Q Okay, and could you describe in general the purposes of groundwater contaminant delineation?

A Yeah. The broad goal is to try to evaluate whether there are risks posed to human health in the environment by -- I'm thinking in terms of industrial releases. Is that the direction you're --

Q Yeah, yeah.

A So we're looking at trying to define the extent and magnitude of any impacts to the environment: soil, groundwater, surface waters if

it's applicable.

Q Okay. What kinds of technical and scientific expertise are needed for groundwater contaminant delineation?

A Geology is a important factor -- hydrogeology. Chemistry is important in understanding the movement of contaminants in the subsurface. Some biology.

Q You mentioned hydrogeology. Could you expand just a little bit on your experience or qualifications as it relates to hydrogeology?

A Yeah. I've worked on many projects where we put in a wide range of wells, well networks, recovery wells, design recovery systems. There's methods of injecting air sparge, fluid extraction. And that's the kind of work that I've done most of my career.

Q Okay. Is groundwater flow mapping -- could you describe that, and is that an aspect of hydrology and hydrogeology?

A Yep, absolutely. You have -- I think Barrett mentioned in his testimony you need at least three control points -- a survey in the elevation of the water table. And it's really a matter of looking at the surface of the water table -- you would say the potentiometric surface of the water table -- to

determine which way groundwater is moving. And that's a part of what we do on any project.

Q Have the methods of groundwater flow mapping changed in recent years?

A Yeah. There's an increased use of computers. So, you know, when I started, we would hand-draw all of our contours -- triangulate and draw your own contours. Now it's done largely through software that does a kriging program that creates contours. So yeah, it's changed.

MR. MOELLENBERG: All right. At this point, I would tender this witness as an expert in geology, hydrology, and groundwater contaminant delineation.

MR. RAZATOS: Mr. Tremaine, any objections?

MR. TREMAINE: None.

MR. RAZATOS: Okay. He shall be entered.

MR. MOELLENBERG: Thank you.

BY MR. MOELLENBERG:

Q Are you involved in groundwater contaminant delineation regarding a release relating to an area around the EBDU Number 37 well?

A Yes, I am.

Q And you've answered part of this, but when did you become involved and what is your role?
A We -- I became involved in -- I guess it would be August. And my role is as senior geologist on the project supporting our project team.
Q Okay. Obviously, you weren't there, but are you familiar with Apache's preparation and implementation of a remediation plan early on in response to the release?
A I've reviewed the documents, yes.
Q And you're familiar with the remediation plan that's been admitted as Apache Exhibit A-2?
A Yes, I am.
Q Do you have any particular comments on the remediation plan and its implementation as it relates to groundwater contaminant delineation in response to the release?
A No. I think it was a standard approach for this type of a release focused on soil, initially -- soil delineation, excavation, backfilling. There was some -- with the windmill, there was some concerns that two wells were put in, which isn't usually done, but the plan is -- it was a standard approach.
Q Okay. You mentioned the windmill and a couple of monitoring wells. Are you familiar, then,

with the initial groundwater monitoring requirements or commitments related to the release?

A Well, I know that they sampled the well, and the initial samples were for BTEX, benzene, toluene, ethyl benzene, xylene, chloride, TDS. I believe that TMW-2 had some chloride and TDS. One and the windmill, I think, were okay.

Q Okay.

A Or below standards when I say that. Yeah.

Q Yeah.

A Sorry.

Q Let me just ask a question specific to the windmill. Is there much information in the record about the well associated with the windmill? Its construction depths and the like?

A No. I have -- we have not been able to find well records for that well, so I'm not sure how it was constructed or how deep it is. There's well records that have not been made available to me.

Q Okay. And is it your understanding that the initial remediation plan considered the initial groundwater monitoring results from the first two wells?

A I believe it did, yeah.

Q Okay. And is it your understanding that the

Division approved Apache's remediation plan?
A I believe they approved it with conditions, and the conditions involved installing two additional monitoring wells.
Q Okay.
A If I recall correctly.
Q Yeah. Conditions I think we've discussed with the earlier witnesses the circumstances about those.
A Yeah.
Q But -- so there were commitments at that point in time for four monitoring wells?
A Right, right.
Q Have you reviewed the initial annual groundwater monitoring report, and if so, do you have any comments on that regarding particular contaminants of concern?
A No. Well, the initial report was based on the four wells, and so they've identified chlorides and TDS, or total dissolved solids, as the primary chemicals of concern. They did sample for BTEX in all of the wells.
There were -- there was one detection of toluene or one date had toluene detected in, I think, three wells at very low levels just marginally above

the laboratory detection limits. It's never been repeated, but that did occur.

The four wells was enough to get a general groundwater flow direction. They mapped it flowing south to southwest. That's what the report showed.

Q Okay. And is it your understanding that that annual groundwater monitoring report was provided as Apache Exhibit C-1 with its pre-hearing statement?

A That's correct.

Q Okay. Are you familiar with the New Mexico Water Quality Control Commission Groundwater Quality Standards and particularly the classification of standards for chloride and total dissolved solids?

A Yes. I believe they are in Chapter 20 of New Mexico Administrative Code.

Q 20.6.2.3103; does that ring a bell?

A That sounds right.

Q Okay.

A Thank you.

Q And are there different groups of contaminants or classifications of contaminants under those standards?

A Yeah. The primary drinking water standards are health-risk-based standards based on toxicology-type information for chemicals such as benzene.

Chloride and TDS are not included in that group. There are secondary standards for chloride, TDS -- regulated just a little bit differently.

Q Okay, and --

A And they're --

Q When you say "secondary standards," is it your understanding that those are described in the WQCC rules as standards for domestic water supplies?

A Yes. And -- and that's -- they're kind of aesthetic parameters or water characteristics that get to the suitability of drinking water. Nobody wants to drink saltwater, but it's not necessarily toxic; right?

Q Yeah. And you're thinking -- or you mentioned secondary standards. Is this set of standards similar to EPA's secondary drinking water standards?

A That's where I -- that's where I pulled that term. I'm not sure of the New Mexico term offhand, yeah.

Q Okay. Yeah, yeah. Fair enough.

A Yeah.

Q So we were talking a little bit about the initial annual groundwater monitoring report, and I think this is toward the end of December of 2020. Do

you know if that report was approved?
A It's my understanding that it was approved and -- yeah.
Q And is there a written record of that approval in Apache Exhibit C-1?
A That's what I understand, yes.
Q Okay. Are you aware of some expansion of groundwater monitoring beginning in 2022?
A Yeah, there was some -- there were two additional wells put in: TMW-6 -- TMW-5 and TMW-6. There were some communications between Apache and OCD that led to those two wells; I believe. It's -- looks like it's Exhibit B-1 is my understanding.
Q Okay. Thank you. And with that expanded monitoring to those two additional wells, have you reviewed results obtained from those wells, and are there any particular conclusions you draw from those?
A Well, both TDS and chloride exceeded the groundwater quality standards in both of those wells.
Q Okay. Is it your understanding that groundwater monitoring was expanded once again in early 2023?
A Yes.
Q And could you describe your understanding and any results you're aware of of that phase of the

groundwater monitoring?

A Well, on the site, my understanding is that there were initially four additional wells put in: TMW-7, 8, 9, and 10. And based on the results of those sampling wells, Apache and OCD discussed the results is my understanding -- and agreed to go back and put in additional wells. And that led to the 14 additional wells being installed in November, December.

Q Okay. So let me, let me back up quickly to the first four wells you mentioned in around April of 2023. Is there a scope of work for those additional wells, particularly Apache Exhibit C-2 to the pre-hearing statement?

A Yes. I believe that's correct, yes.

Q Okay. So you started to mention an additional expansion of groundwater monitoring subsequent to this. What was your understanding regarding what precipitated that expansion and how it came about?

A Well, they put in the four wells, and wells number 7 and 8 exceeded groundwater quality standards. I think 9 and 10 were below standards. My understanding is that there was a discussion between OCD and Apache to go out into the field with a drill

rig and do the best that you could to collect field data while drilling to determine what -- where to place the next wells.

So my understanding is that it was a little bit of a free-flowing work plan. It wasn't a specific "go and install 14 wells." It was "go in to find the plume," and Apache used field titration to measure chloride in the field, which is -- you know, it's a -- it's a step above qualitative. It's nothing like a lab, but it gives you an idea of whether chlorides are present or not.

And on that basis, they installed a series of wells, and I -- you know, they would first put them in inner -- it's like an inner-ring suburb; put in some wells closest to your source and then step out, trying to find the perimeter of the plume.

Q Okay.

A And that led to that additional 14 wells.

Q So thank you. So is it your understanding that before that drilling campaign had started, Apache and the Division had discussed something on the order of five or six wells that would be needed as a minimum?

A Yeah, and I -- I'm just not that familiar with that particular work plan.

Q Okay.
A So yes.
Q And then, as you've described it, Apache drilled some wells, collected some field data, and then continued to drill the additional wells based on the field data?
A Yeah. They spent, I think, nearly four weeks in the field with their drill rig.
Q Okay, and I think you said that resulted in a total of 13 additional wells; is that right?
A I thought it was 14, but you probably have better numbers than I do.
Q Well, my math is always bad, so I think -- are we talking about the wells that have been identified as wells TMW-11 through 24?
A Yeah, yeah.
Q Okay. And did -- after the field work with these wells, did -- I think Mr. Bole has described the well development and then some additional sampling and analysis that took place regarding, I believe, all of the wells at that time. Do you know if that's correct?
A They did an initial round -- my understanding is an initial round of groundwater samples in December, and that would include

measurement of water levels and samples usually done. You -- you measure water levels first, then you collect your samples -- and then another round in March. And those -- so those are the figures that we've been looking at in some of the reports.

Q Yeah. And I think with those figures, you're talking about the groundwater monitoring report that I think is dated March 27th of 2024?

A Yes. I believe that's Apache Exhibit B-2.

Q Apache Exhibit B-2. And I think Mr. Tremaine was asking some questions --

A Yes.

Q -- from that report. So at this point, could you give us a little more description of your impression of the results regarding the groundwater monitoring as discussed in the March 2024 report?

A Yeah, so at this point, you know, we have a network of 24 monitoring wells, and that does a pretty good job of defining the flow in the aquifer. So it's to the south-southwest; there's a few perturbations that we've talked about -- we can look at a little bit more -- but the flow is to generally south-southwest.

Chlorides -- the well Number 17 was identified as clearly having the highest chloride of any of the other wells. And then there are a number

of wells surrounding 17 that are also sort of high, so there seems to be a groundwater high at that point on the property.

Q And do you recall in this report what the value was for chlorides in well TMW-17?

A I want to say it was 5,000-something milligram per liter -- in that range.

Q Okay. Did that sampling and particularly the water level measurements indicate anything that was noted at that point regarding potential high elevations of groundwater and lower elevations of groundwater?

A I think it was the March sampling that identified a groundwater high at TMW-4; I believe. I don't think that that showed up in the December data, but I'd have to look at the maps to be a hundred percent certain.

Q Okay. And we perhaps can do that. I would just ask if you noted any potential errors when you took over the project and reviewed that mapping?

A Yeah, so one of the wells that showed a -- a real low point from March -- I think it was around TMW-19 -- if you look, they recorded the data as three-thirty -- 3360.88. In the table it's recorded as 3361. So the -- there -- there does appear to be a

low point there, but it's accentuated in appearance by some incorrect data on the map.

Q Okay. So are you generally familiar with Apache's and the Division's discussions following receipt and analysis of the March 2024 groundwater monitoring report?

A Yeah, I believe that a report was put together with Larson & Associates that all that data was presented in. It was presented as a work plan, but it also presented the data; I believe.

Q And are you referring there to the May 8, 2024, work plan?

A Yes.

Q And is that included as Apache Exhibit C-3 with Apache's pre-hearing statement?

A I believe that's correct.

Q Okay. And do you have any other comments that you'd like to make about the content of that plan at this point?

A Not really.

Q Okay.

A No.

Q Are you aware of what happened following the Division's review and action on the May 8, 2024, plan?

A Okay, so yeah. So their plan involved -- I

was getting a couple of things mixed up, I think.
Q Sure, sure.
A They had a Larson report and then they had a proposed work plan. So there were two significant documents that went in April and May, I believe.
Q Okay. I've probably confused you here. So I think we got up to the May 8, 2024, scope of work.
A Okay.
Q And then I was starting to talk about OCD's review --
A Yeah.
Q -- and action on that. And I think you mentioned something about a scope of work, but were you thinking of -- or perhaps you were at a different timeframe -- thinking of the conditions of approval?
A Well, their initial scope of work involved -- proposed installing five wells, TMW-25 through 29, if we're on the same page -- in their May 8, 2024, scope.
Q Okay.
A And one soil boring and a pump test.
Q And then is it your understanding that the Division reviewed that report and after several weeks, I suppose, toward the end of July, the Division approved but subject to additional conditions?

A Right. So my understanding is that that scope of work was what they had kind of discussed and agreed on with meetings. This proposal or scope document was prepared, and then the OCD approved it conditionally, and the condition involved installing an additional, I think, 14 wells.

Q Okay.

A In addition to the five that were proposed.

Q Okay. And is it your understanding that after some back and forth between Apache and the Division regarding the conditions of approval that Apache subsequently proposed some but not all of the additional monitoring requested in the -- or required by the OCD's conditions of approval?

A Yeah. So then there was a follow-up proposal that included the original five Apache proposed wells plus two of the wells that OCD had requested for a total of seven plus four soil borings to be put in locations agreed -- mutually agreed with OCD's input, and then a pumped -- aquifer characterization pump test to better understand conditions in the aquifer.

Q And is that proposal described in Apache Exhibit B-4?

A Yes, I believe so.

Q So we're almost ready to get to the maps, but before we do that, I want to cover one other thing. So we're -- we've now gotten to September of last year. Did Terracon on Apache's behalf conduct a new round of groundwater sampling and analysis following submission of the September 24, 2024, proposal?

A Yeah. After the -- after the OCD decided not to talk anymore, it was decided to conduct one more round of groundwater samples to get a fourth quarter, so we went out end of October, early November; measured water levels; and collected groundwater samples.

Q Okay, and did your firm, Terracon, prepare and submit a written report of that round of groundwater monitoring?

A Yes, we did. We called it a quarterly groundwater monitoring report.

Q Okay. And is that report included with Apache's pre-hearing statement as Apache Exhibit C-3?

A Yes, I believe so.

Q Okay. And in that report, did Terracon provide some updated mapping based on the results of this latest round of groundwater monitoring?

A We did. We included -- well, we included

depth to water -- tables that showed depth to water chemistry and then we included a groundwater flow map, a groundwater chemistry map for chloride, and a TDS contour map.

Q Okay. And I think we've established this, but Apache's report included an initial groundwater flow map as well as some of the other maps you mentioned; is that right?

A Yes.

Q Subsequent to the submission of that report, did you review that map and identify some issues that needed to be addressed in an update?

A Yeah. Yes, we did. So TMW-14 on the contour map lists a groundwater elevation -- I guess I don't have my note in front of me -- of, I believe, 3366.19. And in looking into the details of this, I realized that one of the tables was incorrectly created. The correct elevation is 3364.19.

The groundwater flow map was drawn with the correct number, so the contours and the flow are unchanged, but the label that shows up next to that well is incorrect and so that needs to be fixed.

Q Okay. Was that corrected in another map that you prepared and submitted here?

A Oh, I'm referring to the -- the monitoring

report.

Q Okay. So let me back up a little bit so we make clear what we're trying to do. So there was a map --

A Oh, I see. Yeah.

Q -- with the groundwater monitoring report that was submitted, I think, in early January; right?

A Yep. Yep.

Q And that was included in the pre-hearing statement?

A Yep.

Q And then subsequently, you identified some issues and provided a new map, which I think we've labeled as Apache Exhibit C-4.1?

A Okay, so there were two map corrections that occurred.

Q Okay.

A The first was we exhibit -- we prepared this -- I think it was Exhibit C point -- C-4 map. And I realized the scale was wrong, so it did not include, for example, TMW-25 or TMW-28; it was just zoomed out too far. And it also had -- one of the wells was wrong color; it was shown as blue instead of green on my map. So I fixed that, and that's what we submitted. That corrected map was C-4.1.

Q Oh, good. So okay. So what you're saying is the difference between the first map that went in with the pre-hearing statement and the corrected map was basically just some labeling and --

A Yeah.

Q Is there any technical difference between the two?

A No, no.

Q Okay. Did you receive and review some information late yesterday from OCD with comments on some of the groundwater levels as shown in the Exhibit C-4.1 map?

A Yeah, and that's what I was referring to.

Q Okay.

A Yeah. With -- there were two errors. TMW-14 was mislabeled with the wrong elevation. However, the contours were drawn by the software with the correct elevation, so there's no change in substance to the map, but the label has to be changed from 3366.19 to 3364.19.

Q Okay. Okay. And I think we're probably, then, ready to pull up the map --

A Yep.

Q -- and get to work on it.

A And there is one other correction that I had

to make.

Q Okay. Yes.

A TMW-13 -- it was pointed out that the elevations were incorrectly calculated, and there was a math error in our spreadsheet. And we took the top-of-casing elevation for TMW-12 and it was copied into the cells for 13, and that resulted in an error. And so that also has to be corrected.

Again, it's not -- this will change the contours a little bit on the map. It actually will flatten them out a little bit and make it look a little bit more normal. So it removes a little bit of the hump that goes up to the north. We -- we have to fix that, though. It's an error.

MR. MOELLENBERG: So, Mr. Chair, if you'd allow us to share the map, I'll first ask Mr. Grams to point out this couple of areas so we can start with an understanding of that, and then we'll go to the discussion that we've all been waiting for.

MR. RAZATOS: Sure.

Sheila, can you give him access, please?

THE WITNESS: Okay. So we'll start at -- first of all, this map doesn't show the error at TMW-14. Well, let me just orient you a little bit to

this map.

Okay. There's -- there's a lot going on here. I kind of apologize for making it so busy, but we are trying to show a lot. First, the green area is the area of impacted soil from the spill.

So the spill occurred; the release point was at TMW-7, which is at the easternmost extent of the top of the T; ran west and down south towards the low point. So the green is the impacted soil that was ultimately remediated -- dug up by Apache during their early stage remedial activities.

The blue lines are the groundwater contours. So each contour line shows a point of equal elevation on the groundwater surface, and groundwater flows from high to low, so the arrows are showing the general flow direction.

The yellow -- the thin yellow lines are chloride ISO concentration contours. So this is showing the data from October, November 2024. This is the most recent data. And you can see there's a high point, TMW-17. There's a 10,000-milligram-per-kilogram contour; there's a 5,000 milligram contour; and so on.

The numbers -- the -- the red wells on this are the existing monitoring wells. So all the --

every red circle is an existing monitoring well, and the number you see is the chloride concentration at that well. So this well -- this map doesn't even show the issue with the groundwater mislabeling because it's labeled for chlorides.

It does, however -- if you want to move the map down just a little bit so I can see TMW-13? Other way. Up, I guess. There.

So the -- yeah, so TMW-13; this map was drawn with an incorrect contour. And the -- the effect of fixing that is going to be -- you'll see the 3364.5 line. That and 3365 will drop down and just -- it'll appear more flat. So it doesn't change any conclusions. So we'll fix that.

BY MR. MOELLENBERG:

Q Is there anything else you want to explain to the Commission about the minor changes and the error that might affect this?

A No, that's it.

Q Okay.

A Just two -- those two things. Yeah.

Q So just to summarize this, this map reflects the most recently collected groundwater monitoring data including groundwater levels and chloride values?

A Yes. And there is one other feature shown

on here if we want to get real technical on the geology a little bit. And -- and you might want to zoom out a little bit. The fat yellow lines; these are lines that were created by Larson & Associates' mapping that show the thickness of the aquifer.

So the thickness of the Ogallala Aquifer can vary quite a bit. It's -- it's relatively flat on the top, but the Ogallala sediments were deposited on an erosional surface that has topography. Just like -- just like looking outside your window, there's hills and valleys.

And the yellow lines show where the drill -- drill rig hit the bottom confining layer, and it creates almost like a basin. So the topline 10 feet -- the Ogallala is only 10 feet thick -- then 15, then 20, then deeper. And the image we're getting is of a sort of basin that is -- we think is sort of confining the chlorides and resulting in that shape that we're seeing in the center of the plume.

Q Okay. In terms of the groundwater flow mapping, Mr. Grams, is there anything in this map based on the latest results that's materially different from the maps with the previous March 2024 results?

A It also shows the groundwater high at TMW-4,

which also showed up on the March 4th map. That -- that feature didn't show up in December, so we're trying to understand that. I -- I think that it may reflect increased infiltration of -- from precipitation in the area -- of the low-lying area -- and where it was excavated. That would result in a groundwater high, but I -- I don't know for sure.

Q Okay. But just generally in terms of the context or the contours and the values, do you recall material differences between this latest map and the previous map?

A No. It flows to the south-southwest, and yeah, so it's not changed.

Q Okay.

A It's fairly consistent.

Q Some of the contaminant values have changed though; right?

A Yeah. The -- the values have gone up in some of the wells. I -- I did a little count just recently, and I think there were about half the wells that stayed about the same and about half the wells it's increased.

Q Okay. Were there some difference in sampling methods between the March sampling round and the -- I guess it's the October sampling round?

A That's true. We used a passive sampling technique in October, November. They're called HydraSleeves. It's you -- I won't get into the details of it compared to a low-flow sampling technique. However, there were a handful of wells that we did low flow during this event because there wasn't sufficient water to get a HydraSleeve and we didn't see any correlation of the sampling difference.

So I don't think that explains the difference, but it -- it was something that was done differently.

Q Okay.

A And we did talk to OCD about that before we did it, so they were aware we were going to change our method.

Q And that was just something that Terracon recommended as a change from what --

A It may -- its -- yes. Its -- yeah.

Q Okay. So with all of that in mind, I'd now like to review with you a comparison of Apache's proposal to conduct additional groundwater contaminant delineation with the OCD conditions of approval.

And I'm going to break this down into certain areas on this map, and I'd like to start with the southeast part of the area covered by the map or I

believe it would be the lower right-hand part of the map. Do you see that?

A Yep.

Q Okay. With respect to groundwater flow, how would you describe this particular area in relation to the release point as well as the areas identified with the highest chloride concentrations?

A This is downgradient and cross-gradient from those, so down and a little bit over.

Q Okay. And what does that mean in terms of, say, contaminant transport and such?

A Well, over time you would expect that these would be the wells much -- far, far in the future that would show impacts if contaminants keep moving.

Q Okay.

A They would be the last to show an impact. It'll take a while for groundwater to get here. Water moves very, very slowly. I --a -- a groundwater model might tell you how quickly it would take to get there. We haven't done that yet, but yeah.

Q Is there some more information you would need to collect to do any quantitative groundwater modeling?

A Yeah, so, you know, this is the Ogallala Aquifer. It's fine-grain sediment; sand; both

alluvial -- or river deposits -- and eolian, which are wind deposits. It can vary in the hydraulic conductivity. The -- essentially the permeability changes from one location to the next depending upon what the sediments are like. So an aquifer pump test will give us practical information that will help us determine how to set up a proper model and understand it.

Q Right. And that pump test is part of Apache's proposal?

A That's why -- that's why we proposed that, yes.

Q Okay. And as far as you know, the Division hasn't objected to that?

A No, I think that must have been something they've talked about on and off; I would assume.

Q Okay, so from Apache's perspective, speaking again to the southeast part of the area at issue, what is the purpose and need for additional groundwater contaminant delineation in this area?

A Yeah, so this is -- and you know, one thing this map shows; you'll see that the bottom yellow chloride contour line is dashed in the southeast there. That's means it's kind of inferred. We don't have good enough data to draw that line, really.

And so the additional wells -- first, I'll point out the blue wells are the wells that Apache has proposed. The green wells are the wells that OCD has requested -- okay? -- on this map. Green is OCD requested; blue is Apache proposed.

So down in this area -- and there's a little twist to it, but TMW-31, for example, is a well that's far downgradient that we have proposed that was also proposed by OCD as TMW-42. So that's a well we agree on; okay?

Q Okay. So just to clarify if -- and I think I understand this right, but maybe not -- OCD proposed it in their conditions of approval as Well Number 42?

A Yes.

Q Okay, and then Apache picked up that proposal and said, "Yeah, we agree, but Apache is calling it in their plan TMW-31"?

A We agreed; we didn't have wells in between and we wanted it to be in sequence, so it had a different number on it.

Q Right. And one other thing; I don't know if this will come up as we're going through, but I think there's some duplication of numbering in the OCD conditions of approval. I don't know if you picked that up in your maps or not.

THE WITNESS: I think 41 might have been listed twice or something, but -- and there is one -- one thing.

Sam, there's an additional well -- a blue well, 25 -- there you go -- that's a far downgradient, so --

BY MR. MOELLENBERG:

Q And I think we'll probably talk about that in the next --

A Okay.

Q -- just to avoid confusion.

A Yep.

Q So yeah. Thank you.

A Charging ahead.

Q So, to summarize, we've got two wells here shown with two different numbers -- Apache TMW-31 with the 42 by it and Apache TMW-30 with the 39 by it -- and Apache and the Division are in agreement on the need for those wells and their locations; right?

A That's correct.

Q So talk me through what's going on with the blue well labeled TMW-26 and the green well labeled TMW-38.

A Yeah. OCD requested Number 38. We had already proposed 26, and we feel that provides all of

the downgradient control and information we need there. We just don't think 38 is necessary.

Q So you think TMW-26 is a preferable location to serve that purpose?

A Yep. It provides downgradient outer control, and I think that should be sufficient.

Q Okay. And would well -- in your view, well TMW-38 provide any additional value?

A I don't believe it does. I think that we -- with the well network that we're looking at and existing wells, we'll know all we need to know down in that corner.

Q Okay, so just to -- is it fair, then, to summarize that in this southeast area, there's agreement on two well locations and there's some disagreement on the location and perhaps an additional well that the Division might want in this area? And I'm talking about TMW-26 and 38.

A Yeah.

Q Okay.

A Yeah. That's fair.

Q Anything else that you would like to note about this particular area of the map?

A No.

Q Okay, then let's move to the southwest part

of the impact area. So we've scrolled and now we're showing -- we may want to go down just a little bit so we pick up 25.

A Yeah, that's right there.

Q Yeah, probably right there.

A Yeah.

Q So we're talking about the lower left-hand part of the map here; correct?

A Correct.

Q Okay, so moving to the southwest part; how would you describe this area with regard to groundwater flow and in relation to the release point and also the areas identified with the highest chloride concentrations?

A This is downgradient, some -- quite some distance from the release point.

Q Okay. And from Apache's perspective, what is the purpose and need for additional groundwater contaminant delineation in this area?

A We just want to be entirely sure that we have the furthest southern extent of the plume defined. And you know, we feel like 24 and 23 do a pretty good job of that; 23, at a thousand, you can argue is probably -- you -- we need to step out, thus 25 further south.

I have to mention 31 because it's also similar purpose, but the point is to make sure that we go far enough that we have an absolute downgradient well.

Q Okay, and in this area, is Apache proposing any additional monitoring wells other than TMW-25?

A Well, I mean, I kind of put 31 almost in that category, but it's -- it's -- 25 is the downgradient well.

Q Okay. So in your opinion, is the additional monitoring well proposed by Apache for this area adequate to complete groundwater contaminant delineation in this area?

A I believe it is, yes.

Q Okay. So let's turn to the -- the green wells. What wells have OCD required under its conditions of approval in this area, and what is your understanding of why those are being required?

A Well, they requested TMW-41 as a downgradient well to provide additional delineation between 24 and 23, and, you know, we just feel that 25 provides the downgradient control and -- and there's no real value in 41. Not needed.

Q Okay, so let's turn to well TMW-40, the green well labeled there. So the same question.

What's your understanding of the OCD's reasons for including that well per the conditions of approval, and what are your comments on that?

Yeah, they would like -- they felt that we should have a well in between 18 and 19. And when I look at the existing well network with 24, 23, 19, 18, and the proposed wells of 31, 30, and 26, I feel like we have the area well-enough defined.

Okay. Are you aware of any other reason that, at least from Apache's viewpoint, why you might want to consider a well at TMW-40?

A Not really, no.

Q Okay, okay. So is it fair to say in your view -- Apache's view -- that if you put a well at the location of TMW-25, that's adequate to complete groundwater delineation in this area?

A We sure hope so, yes.

Q And in in your view, wells TMW-40 and 41 in this area aren't necessary?

A I don't believe they will provide any additional information that directs what we do about this issue.

MR. MOELLENBERG: Okay, so let's move up in the map and talk about the middle.

Up a little more.

BY MR. MOELLENBERG:

Q Is that about right?

A Yep.

Q Okay, so how would you describe this particular area, particularly in relation to contaminant concentrations?

A Well, this is the area that shows the highest concentrations in the whole area as evidenced by 17, 14, 15, 18; even bounded by 5, 6, 20 -- you know, has it kind of surrounded. So this is the area of highest chloride concentrations.

Q And do you have any comments about this area as it relates to the point of release?

A Well, this is kind of down and over just a little bit from the point of release. The point of release is -- I guess if we move the map a little bit, we would see -- yeah -- TMW-7. So it's downgradient.

You know, we've speculated -- we're acting on the assumption that the release at TMW-7 location is what's caused this. And -- and that's why we are proposing 27 to be in between the two to see if there's a connection. We're expecting to see a high chloride at TMW-27. Time will tell.

Q Mr. Grams, we have had a little testimony on this earlier today and -- by Mr. Bole, I believe --

and I think you were present. Do contaminants always follow a path from the release point right in line with groundwater flow direction or are there other geologic features that can affect how that operates?

A Yeah, as Barrett alluded, the stratigraphy -- the geology -- of the site can have a major influence on how contaminants migrate downward through soil. So there's roughly a 40- or 50-foot column of soil between the surface and the aquifer, and differences in permeability of the materials can direct how things flow.

Q So can that factor direct or affect whether a particular location is directly downgradient from a point of release when you're looking strictly at groundwater flow?

A Yeah. I mean, it can be very complicated.

Q Does Apache propose any additional monitoring wells for groundwater contaminant delineation in this area?

A Well, so we proposed monitoring well 27, and the proposal is to install that as a large-diameter well to allow pumping. And depending upon what we find there, that may or may not be an appropriate place for recovery. It's put in as a monitoring well, but a large-diameter well.

We're also proposing four soil borings to look at soil from the ground surface down that should give us an idea if there's another point of a surface release; we should be able to find it that way.

Q So in your view, if well TMW-27 is installed as Apache proposed, would that complete groundwater contaminant delineation in this area?

A Well, yeah. This is all central interior to the plume. We have wells with low concentrations on all sides of this, so this is defined and constrained by lower -- wells that show lower concentration. And all the wells that are proposed are interior to the plume and I don't think are going to change our view of that plume much.

Q So when you say "all the wells that are proposed," are you now talking about the wells that are included in the Division's conditions of approval?

A Yeah. I'm looking at 34, 35, 36, and 37.

Q Okay, so those are all wells that would be required if the Commission approves the Division's conditions of approval?

A Yep.

Q Okay, and what are your comments on these particular well locations and your -- in relation to your understanding of why the Division has included

them in its conditions?
A Well, I think that my understanding is that they're looking just for more definition in the area of high chlorides, potentially looking for other sources. And -- and when I look at the map, I see 14, 15, 17 -- the other surrounding wells, I feel it's -- it's already defined.
Q Are you aware of any information that suggests that there may be additional sources of chloride contamination in this area?
A I'm not. I'm acting under the assumption that the release up at the junction box is the source of this.
Q Okay. Can you rule out the possibility that there are any other sources of this area?
A No, absolutely not. Cannot.
Q So just not aware of anything?
A Yep. Yeah.
Q You're just not aware of any information that suggests that there would be a source?
A That's correct.
Q Okay, so I think you've indicated already that in Apache's view, the addition of well TMW-27, which, obviously, has another purpose, would be sufficient to conclude groundwater contaminant

delineation in this area?

A Yes. Well, we hope so, but every well we put in will inform future -- you know, just like your caveat that's put in every email. I mean, we recognize there may be additional steps required based on what we find here.

Q Okay. And conversely, is it your view that the four additional wells required by the Division's conditions of approval are not necessary to complete groundwater contaminant delineation in this area?

A That's correct. I think it is already defined in that area.

Q Okay. So lastly, let's move to the northern part of the area shown by this map.

A Okay. There we are.

Q Is that good?

A Yep.

Q I think we've covered everything there. So to begin with, would you describe this area in relation to groundwater flow, the location of the release, and the location of the highest attacked contaminant levels?

A Yeah, so these are all -- well, most of these wells -- this is upgradient from the release point, upgradient from the center of the plume. If

you look at well 28, we certainly expect that to be clean. We -- we feel like MW-12 and 11 are probably too far upgradient to show any impact from that release. It's a little hard to say, but yeah. It's upgradient.

Q Okay. You've listened to some testimony there relating to well TMW-13; we may have covered that a little bit with you. Do you have any particular comments on that well as it relates to being upgradient or otherwise in relation to the -- the point of release?

A Well, I mean I -- you know, on one level, you look at it and you wouldn't think that would show any impact from a release, but I was looking at the boring log for MW-7 and it noted a large clay lens right about halfway down.

And that can be the kind of thing that deflects a release in one direction or another, so it's not out of the question that 13 is showing the results of the release from the junction box.

Q Okay, so what additional monitoring wells has Apache proposed in this area, and what are the reasons for Apache's proposal?

A So we proposed 28 and 29 and the -- as two upgradient wells, and we proposed that the average

chloride concentration in those two wells would be used to reflect background conditions.

Q Okay. Is there any purpose, from Apache's perspective, to wells in this area other than to establish background conditions?

A Well, the only other reason that I could imagine would be to look for other sources of release.

Q Okay.

A We have no reason to believe anything is up there, but yeah.

Q Okay. Yeah. You have no reason to believe that there are any sources up here that would be impacting the high-chloride areas to the south?

A No.

Q Okay, so let's talk about the additional wells in this area contained in the Division's conditions of approval and your thoughts on that. Would you start by just identifying the additional wells and the conditions of approval within this area?

A Yep. These are the green wells: TMW-30, TMW-31, 32, 43, and 33.

Q Okay.

A Yeah.

Q So why don't you -- perhaps one by one or if you want to group them, that's fine -- give us your

thoughts on whether or not these five additional wells are needed to complete groundwater contaminant delineation in this area?

A Well, the goal up here is to define the uppermost limit and what are -- what kind of waters are upgradient and coming onto the site. So if you look at TMW-22, our proposed 29, and 28; that's a nice line of wells at the far upgradient extent, and I think that that provides the information we need to know that.

So the additional wells -- 30, 31, 32; I just don't think they provide any information that's going to change what we do at the plume or how we direct our remediation efforts.

Q Okay, so is it fair to say that in your view, the five wells that are identified in the Division's conditions of approval are not necessary to complete groundwater contaminant delineation in this northern area?

A Yeah. I do not believe they are.

Q Okay, so just a few questions here and we're close to wrapping up. Given the size of this site and its nature, how does the number of monitoring wells -- and I guess I should refer to the existing monitoring wells -- and the scale of groundwater monitoring at

this site compare to other sites within your experience?

A Yeah, this is a very extensive network of monitoring wells. I -- I -- when I look at it, it has provided a great deal of information in terms of delineation around the edges. There's a couple of gaps, which we're proposing to fill. The contaminant concentrations are well mapped out.

I think that it has provided a good -- good understanding of what we see out there. I think the -- the gap now is, "How is the aquifer going to behave and what do we do to address it?"

Q Okay. Obviously, as additional groundwater monitoring has been done, there has been a considerable addition of information gained regarding the site. Is the timeframe for groundwater delineation in this area unusual compared to other sites in which you've been involved?

A No. I mean, I -- you know, the first year or two after the release, I think they proceeded cautiously. I think it was a joint decision. But if you look at everything that's been done from the beginning of 2023, they've done a lot, so it's moved at a very fast pace.

I mean, the -- the wells that we -- the

network of wells still only has three groundwater rounds of samples and -- yeah.

Q So in some -- in your opinion, is the revised plan submitted by Apache in September of 2024 -- and to be specific, I think we're talking about Apache Exhibit B-4 -- is that sufficient to complete groundwater contamination delineation in this area based on your current understanding of the information?

A Well, I think it's a reasonable step to hopefully complete the delineation. We -- we -- every time we do more work, we learn something, but I think it's a reasonable step that will either tell us that we're done or guide future direct -- decisions.

Q Okay.

A Future investigation.

Q And given that answer, this is probably obvious, but do you believe that the September 2024 proposal submitted by Apache is at least a good faith response to OCD's conditions of approval?

A Well, I think it is. You know, it's -- if you're putting in seven additional monitoring wells, and these are -- this is a big effort and it's not a zero-risk game to -- to go do this. There's a lot of people involved, a lot of equipment, and you don't

want to do the work unnecessarily.

This will give us a lot of information, and if additional work is needed, Apache has shown every willingness to do it. So to me, it's a -- it's a completely reasonable step to take.

Q Mr. Grams, I do have one exhibit I need to follow up on, and I may need to pull it up here, but do you recall Apache Exhibit C-5, which is -- it says Existing and Proposed Monitoring Well Map 2024?

A Yeah. This had the same problems as our original C-1. It's -- for example, you don't see the farthest up -- do you? I guess -- oh, no. Okay. No, this is showing it all. This is okay. Yeah.

Q So can you describe what this map is and who prepared it?

A Yeah, no. We prepared this, again, to show a comparison of what OCD has requested and what Apache has proposed. And it's just -- it's a -- it's a Google Earth image of the site. Doesn't have all the lines and contours on it, so you can see a little bit more of the existing oil-and-gas operations and what the site looks like.

Q Okay. I don't know how familiar you are with this, but is there any particular features shown on the Google Earth image that you'd point out to the

commissioners?

A Well, so if you look at the T-shaped spill -- you heard people talk about the low-lying area, so the spill started at the junction box at Number 7 and flowed west a certain distance and at the midpoint flowed south.

And that area at the termination where TMW-1 is located is the low-lying area, which is -- you know, this is a very arid -- arid, desert-like area, and whenever it rains a lot, water flows down there and accumulates there and evaporates and infiltrates.

Q Okay. Any other features here that you'd like to point out?

A No. I see well pad there at MW -- is it 30; 36? Flow lines. I don't know. Yeah.

Q Okay.

A There's roads. I'm not sure.

Q Okay. Fair enough, but nothing of particular note from your perspective?

A Yeah, no.

Q Okay.

A I might -- I -- you know, I think you'll see a series of roads there. I think that those are all created by going back and forth to the wells.

Q Okay.

A Yeah.
Q So, Mr. Grams, do you have anything else to add or does that conclude your direct testimony?
A That concludes my direct testimony.
Q Okay.
A Thank you.
Q Will you be available to listen to the Division's witnesses testify and provide any rebuttal testimony of called again by Apache?
A Yes.
MR. MOELLENBERG: Okay. Thank you. With that, I believe this witness is available for cross-examination.
MR. RAZATOS: Okay. That's awesome. I -- go, please.
MR. MOELLENBERG: If I might, before I forget, I should move to admit Apache's Exhibits C, C-1, C-2, C-3, C-4.1, and C-5 into evidence.
(Exhibits C through C-5 were marked for identification.)
MR. RAZATOS: Mr. Tremaine, any issues with that?
MR. TREMAINE: No objections.
MR. RAZATOS: Okay, so we'll enter them.

(Exhibits C through C-5 were received into evidence.)

Before we pass Mr. Grams over to Mr. Tremaine for cross-examination, I need a little break, so let's take a ten-minute break. We will come back at 3:55.

THE WITNESS: Thank you.

MR. RAZATOS: Thank you.

(Off the record.)

MR. RAZATOS: Okay. Excellent. Thank you. We're back on the record. Mr. Grams is our witness right now.

Mr. Moellenberg, you are done with your questioning; correct? Okay. Excellent. You've admitted and you're done.

So Mr. Tremaine, we switch it over to you.

MR. TREMAINE: Thank you, Mr. Chair, Commissioners.

CROSS-EXAMINATION

BY MR. TREMAINE:

Q Good afternoon, Mr. Grams.

A Good afternoon.

Q I want to ask you a couple general questions, and then bear with me because I need to

clarify a couple things that you addressed in your direct.

So starting out, I want to refer you to what's labeled in here as Apache Exhibit -- in this C packet -- C-3 -- on page 23 of 143, so I'll share that now. And I believe you had testified as to the content of this and several other maps a few minutes ago; correct? Do you recognize this?

A Yes.

Q Okay, so zooming out for a second; what is the approximate land area -- or specifically, if you know it -- that is depicted on this map?

A I think it's about 40 or 50 acres, but I'd have to measure. But I -- that's what I recall.

Q Okay. And you've testified to identify what we're calling -- I think you're referring to it as a chloride plume centered around TMW-17; is that accurate?

A Correct.

Q Okay. And that chloride plume extends to the bulk of the area depicted here; is that accurate?

A Well, the -- most of the wells on the outskirts we believe are showing background or near background. So it -- it's not the whole map.

Q And that's a good point, Mr. Grams. What is

Apache considering background for --

A That has not been fully determined, but I think that it's reasonable to assume something in the two to three hundreds in this area would be background. But that's -- one of the purposes of the two upgradient wells is to get another set of input on that.

Q Great. Thank you. So the various wells that are reading above that -- above 250, 300-ish for chlorides -- are likely to be considered a part of this chloride plume; is that accurate?

A Well, they're likely to show the impacts of oil and gas activity in the area. Whether it's all from this plume or not, I can't exactly say.

Q Okay. I think I have to press you on that one a little bit. I think you testified earlier that you are assuming a single release. Is that -- in preparing for this hearing, is it still accurate to say that you and Apache are assuming that there is a single release causing this --

A We are assuming. That -- that's fair. We are assuming there's a single release, but -- but we also are fully aware that in the oil patch there are areas of high chloride; there's old reserve pits; there's just a whole history of operations that you

can see if you look hard enough. And so, you know, it would be not fair to not recognize that that exists.

Q Thank you. In your experience, is a chloride plume of this size in groundwater a common occurrence?

A Well, it's not a common occurrence except maybe in the oil patch in the Permian Basin, where there's a long history of chloride disposal in surface pits. That -- that's very well documented in the literature and changing regulations that regulate how that material is handled.

Q Are you aware of any surface pit in the area depicted in this map?

A I am not.

Q Okay. Are you aware of any investigation by Terracon, Apache, or your predecessor consultant to determine whether or not there might be chloride contamination as a result of any pits?

A I'm not aware of that at this location, no.

Q Okay. Zooming out again; how many sites are you currently managing that you would characterize as comparable to the size of this area impacted on the slide I have up?

A I have four projects where there's fairly significant impacts from chlorides that I'm working on

and many more where it's just soil and much less.

Q Okay. I want to jump back to this assumption of a single release. If we do -- let's say we buy that assumption; everybody assumes it is a single release.

Given the impacted area here and the samples that you're seeing with the fourth quarterly report, how much water -- produced water -- would have had to have been released to cause the groundwater chloride levels present in the latest sampling report?

A That's a really good question, and we haven't done it. We can -- we can look at and estimate the mass by using the contours that we have. We have pretty good data. And I can look at the concentrations and the contours and do an estimate for that, but I -- but that -- that has not been done. That calculation has not been done to my knowledge.

Q Do you even have a -- the original release was -- I believe the testimony was it was initially reported as, like, a hundred barrels, but that was determined to be inaccurate, and it was then labeled as unidentified. Safe to say this is much more than a hundred barrels? Is that --

A I think I would not be going out on a limb to say that if this is all from that junction box, it

was considerably more than a hundred barrels. I would guess.

Q Okay. If you were to perform the same kind of assessment, like estimating of volume, and you look at the March sampling report versus the fourth-quarter sampling report, would you agree that you would come up with a different -- a much larger result for the volume that must have been released if you're looking at the fourth-quarter report?

A Yes, you would. The higher MW-14 has a much higher concentration.

Q Okay. We heard some testimony earlier today. Did you listen to the prior Apache testimony, Mr. Grams?

A Yes.

Q Okay. I think we heard some testimony regarding possible sources of a single assumed or potentially multiple sources, and I believe those referred to -- the primary culprit was referred to as likely a junction box. Do you recall that?

A Yep.

Q I believe there was some discussion about a possibility of leaking flow lines. Do you recall or accept that?

A Yeah. The junction box is a part of a

network of pipelines that carry produced water, so I assume that's what is being discussed.

Q Would you agree that a junction box or flow lines that we're talking about are at or very near to ground surface?

A My understanding is that they are within 3 feet of ground surface.

Q Okay. You had referenced earlier -- and I actually have it right here -- this TMW-17 as the original point of the release, and I kind of talked about that a little bit. Do you know what the depth to groundwater from ground surface is at that point or near to it?

A At Number 7, I believe. I don't know offhand. I don't know. I think it's -- it's in the range of 40 to 60 feet. I'd have to look at the tables.

Q Okay, so that would mean that between a junction box and water, there would be something like 37 to 57 feet or more of soil; correct?

A Correct.

Q If there is a substantial release of produced water -- well, I'll just -- I'll limit it to chloride. If there's a chloride contamination as a result of a leak at a box or line or whatever point at

or near the ground surface, would you agree that that would mean that there would be chloride contamination in the soil immediately adjacent to that source?

A Yes.

Q Okay. If there are chlorides in soil that are, for whatever reason, migrating into and impacting groundwater, would you agree that in order to remediate the site you have to isolate or remove those chlorides?

A Chlorides that are remaining in the soil would continue to leach unless you put a cap on it and prevented additional infiltration such as is done in mining cases, but typically, you try to remove the source. Is that what you're getting at?

Q I think we're saying the same thing here, Mr. Grams. That would be the liner in the 2019 plan?

A Yeah.

Q Put a liner underneath the chlorides so that when there's infiltration, the chlorides don't migrate to groundwater. That's the same idea; right?

A Yeah, or above it, too. Yeah.

Q I see. Okay.

A Yep.

Q But that's where you're referring to? A cap is something like a liner?

A Yeah, yeah, yeah.
Q Another viable option is to dig out the chlorides or other contamination?
A Yes.
Q That's a pretty common practice; would you agree?
A That it's done? Yep.
Q So if you have to isolate or remove contamination that's leaching into groundwater, with the distances between these wells, how can you know where you have to put a liner or where you have to dig?
A Well, if I were to plan an excavation here, I would propose a number of soil borings first to fully delineate the extent that needs to be removed.
Q And --
A We -- we typically do that. We'll use a Geoprobe or other -- even hand augers sometimes -- to define the area first so that you know what you're getting into when you dig.
Q Thank you. And I didn't mean to cut you off there. Thank you for that.
A Yeah, no; I'm sorry.
Q Quite all right. In Apache's latest additional scope of work, how many soil borings did

they propose?
A There were four proposed.
Q All right. And I want to now draw your attention to the -- see if I can pull this up. All right. I'm going to ask you a question about page 23 and jump back to the infamous 169 and 170 I keep referring to. So in your earlier testimony, I heard some explanation about a high point, I believe you called it, at TMW-4; is that correct?
A That's correct.
Q And do you recall earlier hearing testimony from Mr. Bole to the effect of the previous groundwater levels at that same point, TMW-4, may have been noted in error?
A I do.
Q Okay. So on this page 23 of Terracon's exhibit -- or Terracon's prepared exhibit for Apache -- we have this area that represents on the map at an elevated point in groundwater; correct?
A Correct.
Q Is that consistent with something called -- potentially consistent with something called groundwater mounding?
A Yeah. That would be a term you could use for that.

Q Okay, and I believe that you had represented there the possibility of that mounding due to infiltration from rainwater; is that correct?
A I speculated that that may be something that we're seeing, but yeah.
Q Possible?
A It's possible.
Q So going back to -- I know we're -- this map looks -- it's depicted -- oh, geez; one moment. I've got to be careful with that cursor.
This map is depicted quite a bit differently, but I'm on page 169 of 733. This is in the packet of B exhibits presented by Apache and admitted. This was taken in March of 2024; would you agree?
A Yes.
Q And I had some questions I've already referred to Mr. Bole earlier. Wouldn't you agree that TMW-4 actually represents as potential groundwater mounting in this previous map?
A Yeah. It seems to show the same feature that we're showing in the October map.
Q Would you understand, then, kind of feedback that rainwater infiltration may not represent a very plausible justification for this mounding effect

that's seen in both March and December?

A You know, I'd really have to -- well, it wasn't seen in December. It was seen in March and the October, November. But I'd have to do a little bit more work.

I did look at precipitation data for a nearby gauging station. There was an inch and a half of rain the month before our October groundwater levels. That's kind of what got me thinking about that. I don't know about March, so I'd have to do a little bit more work to see if it's plausible.

Q Okay.

A Maybe there -- maybe there's a ton of rain. I -- I don't know.

Q Okay. Thank you. I'm going to go back to your exhibits now and refer you to page 16 of 143 in the C exhibit packets from Apache. And so I have this on the screen here. This is the summary of groundwater analytical results prepared by Terracon. These are the samples taken in October and provided to OCD last week; is that correct?

A That's correct.

Q Okay, and the yellow depicted or highlighted fields; these represent either chlorides or TDS that are over the water limits; is that correct?

A Yes. Those are the values that exceed the water-quality standards.

Q And there's two pages here, so I'll scroll down just so you see the scope of what I'm referring to. But, you know, OCD would highlight that most of these wells are showing overages in the latest sample. And they are -- if you look, they are actually showing increases in both chlorides and TDS at the same location over time with the additional sampling events. Would you agree with that?

A Yeah. I -- I looked at this just before my testimony, and there are ten wells that show an increase, and 13 are about the same. Two actually went down. So that's how the data is characterized.

Q Okay, and so there are now four wells with chloride results in the latest sampling event which are over 7,000 milligrams per liter; correct?

A I'll take your word for it.

Q Okay. The one that we talked about most is the TMW-17, and that one is now at 14,900 milligrams per liter; correct?

A Right.

Q Prior to that sampling event, were there any wells that were over 6,000 milligrams per liter?

A I -- I'd honestly have to go back and check

to be sure. I -- I don't recall the highest number before.

Q Given the substantial jump in the levels at some of the wells, is it safe to conclude that the wells are not from a current and active release?

A I don't know how to answer that. I'm not clear. Could you restate that, please?

Q Okay. Can you -- when you look at this sampling data and see the results, particularly at the wells that have increased substantially, can you definitively say that these chloride levels and TDS levels are not the result of a current and active release?

A Yeah, the only thing that could maybe explain it, too, is -- is continued leaching out of a source that raised the amounts. But, you know, I -- I honestly don't know. I just don't know how to explain it. Yeah.

Q Okay, and is it also safe to say that this level of chloride plume was not previously detected in the area from the -- or I guess -- let me rephrase.

Would you agree with the statement that this level of chloride contamination in this plume was not depicted or detected in the area from the prior sampling events?

A No. It's -- it's -- the concentrations are higher in the most recent sampling event.

Q Okay. So specifically looking at certain results like TMW-6 here, for instance, that's on page 16; looking at this second field; this one definitely caught our attention where the result went from 3,280 milligrams per liter TDS up to 11,700.

And to clarify the foundation of my question, that's not chlorides; chlorides went down a little bit. So concerning that TMW-6, does Terracon or Apache have any idea what caused that large jump of over 8,000 TDS?

A You know, I -- I really don't because typically we see chloride and TDS moving in tandem. They -- they usually -- higher TDS, higher chloride; they go together. So this is very puzzling and I -- I can't explain it.

Q Did Apache request the lab that provided these samples to provide any -- or that tested the samples -- provided the results to -- provide any additional results to identify the TDS constituents, which, based on this chart, we're assuming are not chlorides?

A No, we did not ask that. No.

Q Okay, so I want to go to -- I think I'm done

there. I'm going to go to page 27 and just ask you some general questions. Is this the analytical report prepared by the lab that was incorporated into Terracon's latest report for the fourth-quarter monitoring?

A Yes.

Q Okay.

A There were -- there were three reports, I believe, but yeah.

Q Okay.

A Yeah.

Q Is there anything you need to clarify there? I mean, my question is directed at this is part of that report that we got on the 8th.

A Correct.

Q Okay. Great. One second. When did the lab provide the results from the chloride and TDS sampling to Terracon or Apache?

A I'm not prepared to discuss the timing. I -- I don't know. I'd have to look.

Q Okay. Is it your experience that chloride and TDS sampling typically comes back faster than, for instance, 3103 constituents?

A Yes.

Q Okay. And in your experience, what's a

typical turnaround time for those type of lab results? For chloride and TDS?

A Standard turnaround time is two weeks for -- if we don't pay extra.

Q Okay. And to your knowledge, did Apache take any immediate response actions after learning about the increased levels of chlorides and/or TDS that we've been discussing on that page 16 and 17?

A No. I don't believe so.

Q I think that's my only questions on that. I want to go to page 3 of the amended Exhibit Apache C-4.1.

A Okay.

Q All right. And I think you may have answered some of this, so bear with me, but concerning the groundwater elevation at TMW-14; that was identified as an issue by OCD. Can you please explain what happened there in the recording of that groundwater elevation?

A Yeah, so I dug into that in a frenzy this morning, and what I found is that the field -- the notes from our field technician recorded a water level of -- I believe it was 63-point or 65.91, and it was transcribed as 63. So there was a mix-up of a foot -- of 2 feet. A 5 was transcribed as a 3. And that was

in one table. Another table was done correctly.

We had two different tables. One table we try to make pretty for the reports so it's easy to read; the other table is the analytical table that's used for the groundwater flow mapping.

So the flow was based on the correct elevation, but the value that you saw on the table and that ended up getting written on the report was the wrong value. But the flow map was used based on the correct elevation number.

Q Okay, so we're dealing with a scribner's error, in lawyer terms. It's like a copying error. And with the corrected elevation, we're not looking at groundwater mounding at that location?

A No. Correct.

Q But we are still looking at a bubble or potential groundwater mounding at TMW-4?

A Yes. And I've had the team digging into QA -- QC all day today, so yes.

Q All right. I think I've got to go back to -- I want to go to page 65 of 143 in the Exhibit B packet. And this one is, of course, sideways, so I can try and get it. So I believe that this represents -- if you can see it -- that the samples were taken on October 28th of 2024; is that correct?

A For these samples, yes.
Q And these are -- I should have started here. These are the 3103 constituents?
A Yes.
Q AT TMW-17?
A Yeah.
Q And were those analytical results included in the December 2023 report?
A I think they were. They should have been.
Q Okay. Did -- go ahead.
A Well, I point out that TM -- there -- there are different bottle orders and different parameters requested for 17, windmill, and 24. Do you see the numbers below the sample types?
Q Yes. Yeah. Sorry; I'm trying to rotate the page so everyone can see it in a landscape orientation and my PDF has locked up, so I think I'll come back to this question if that's all right. I think I have some clarifying questions that we can get to without dealing with this.
But we've gotten that the 3103 constituents at the TMW-17 were taken on October 28th, and did Apache test for all 3103 constituents at that monitoring well at that time?
A I would have to double-check results to see

if all were done.

Q Okay. I need my PDF to unlock. Let me -- oh. There we go. There it is. All right. Well, I must have hit something in the right order there because it rotated. All right, so in looking at this -- and this has the windmill, TMW-17, and 24. I believe that's the clarification you were making earlier?

A Yes.

Q Is there any -- do you need to provide any clarification or explanation as to the different -- following up in your previous answer? I didn't want to cut you off.

A No. I would just point out that for TMW-17, you'll see there was 60-mil VOAs; there was 40-mil VOAs; there were bottles ordered for that well that were not ordered for windmill and 24.

Q Okay.

A So you'll -- in the lab report, you'll see different results.

Q Okay. And --

A Different report -- different parameters. Yeah.

Q Okay, so for TMW-17, did Apache test for all 3103 constituents?

A I can't say that I know all constituents, so I can't answer that in the affirmative.

Q Are you aware of any reasons for excluding any particular 3103 constituents from that test?

A No. None were specifically excluded, so the lab ran what they -- they ran, but I -- I don't know.

Q Okay. And sampling also occurred at the windmill, you had indicated. Did that occur at the same time as the TMW-17?

A Yes.

Q Were any 3103 constituents omitted from that test?

A I don't think they ran the -- I think there was an error and they did not run 3103 on that, I don't think. They were supposed to, and we did not.

Q Okay, and the same question for TMW-24. Were any 3103 constituents omitted from that test, and if so, was there a reason for that?

A No. I just think they didn't run. That's why you see -- they -- they -- I don't think -- I think that there was an issue with the sample bottles they had available and so they didn't get that done for those locations, so that has to be done next time.

Q Okay. All right. Let's see. Trying to find the sample result. Actually, let me move on. I

may come back to that.

Okay. A couple clarifying questions. I'm back to page 23 to talk about your earlier responses to spacing of the wells and your assessment of the need for particular wells proposed by OCD versus Apache. So TMW-40 --

A Would -- by my -- that would be between 19 and 23.

Q Okay. 19 and 23. Okay. I have the wrong page, I think. Let's go over here, rather.

A There you -- there you go.

Q Page 3. This is a -- okay. Much better. Thank you. So TMW-40; I think you've established that as downgradient of TMW-17; correct?

A Correct.

Q How far away is TMW-40 from TMW-17?

A It looks like it's about a thousand feet.

Q Okay. And also TMW-36 was proposed by OCD; that's a little closer downgradient to TMW-17?

A Correct.

Q And you had testified as to Apache's willingness to put in some of these wells, but TMW-36 and TMW-40; to clarify, Apache did not agree to put in those wells downgradient from TMW-17?

A That's correct.

Q Okay. And then I have the same question. TMW-41; that's also further downgradient from TMW-17. Apache did not agree to install TMW-41?

A That's correct. We thought 25 would serve the purpose down there.

Q Okay. Do you know what the distance is between TMW-23 and TMW-24?

A It looks like it's maybe about 600 feet, but I don't know.

Q Understood. Okay. All right. I think I'm wrapping up here, Mr. Grams; appreciate it. Jumping back to TMW-17 real quick; regarding these chlorides at 14,900, in your experience, would it be normal to jump from 5,600 milligrams per liter to 14,900 due to a rain influx?

A No. So, you know, there is one thing I should point out if -- if I may. We saw the high numbers at 17 from the March sampling, and so one thing that the field guys did was they purged TMW-17 extensively before collecting the sample. So they pumped maybe -- I don't remember the number -- 20 well volumes of water out of it. So that could have resulted in some different results.

Q Okay. Thank you for that. Did they also purge the other wells in a similar manner?

A No, no.
Q Okay. So while the volumes -- so for instance, let's be specific. TMW-18; if that one was not purged in the same manner -- I think that one went from 900 to 7,800, so purging wouldn't explain the dramatic increase in the sample at TMW-18; would you agree?
A I would agree with that.
Q Okay. Okay, so if I'm understanding your testimony correctly, it sounds like you're working under the assumption that currently that there's one release, but you can't rule out multiple sources or deposits of chlorides in soil that are continuing to leach or migrate into groundwater; is that correct?
A That's correct.
Q And from the current map, it is not possible to know precisely where you would have to install a cap or a liner or dig out contaminated material; is that correct?
A That's correct.
MR. TREMAINE: Okay. Let me check one thing. Thank you for bearing with me, but I think I'm done. Mr. Grams, I don't have any further questions for you. Thank you very much for your time.
THE WITNESS: All right. Thank you.

MR. RAZATOS: Thank you. Let's turn to our commissioners.

MR. MOELLENBERG: I do have a little redirect, Mr. Chairman.

MR. RAZATOS: I'm sorry. I forgot to ask you. Yes. Your redirect, please. My apologies.

REDIRECT EXAMINATION

BY MR. MOELLENBERG:

Q Just a couple things to clarify. Mr. Grams, do you recall Mr. Tremaine's questions relating to, I guess as he put it, Apache's view that we're thinking about this being the result of a single release? Do you recall this question?

A I remember that being discussed, yeah.

Q Yeah. Thinking about single release in terms of what is known and unknown, time, location, and such, would you have any reason to clarify your answer in terms of a single release, let's say, or maybe location of releases?

A Well, a single release could go on for a period of time. If that junction box was a source, we don't know how long that was potentially leaking.

The other thing would be, you know, if that's a pipeline run and there's a leak, it can run -- usually the pipeline backfill is a lower

permeability than the surrounding soil, so it can go a distance along that run and drop out at a lower permeability zone somewhere along that run. And so it could show up in different places.

Q Fair enough. And in this discussion of single release, are we distinguishing that from the known release that triggered the initial actions by Apache?

A I'm not sure I understand the question.

Q Well, is it your understanding that there was a reported release that was known because it showed up at the surface?

A Yes, yes.

Q Okay. Are you -- when you talk about a single release, are you distinguishing that in any way from known release that surfaced?

A I don't think so. I mean, a single release point -- I mean, when I think of a single release -- you know, like, it -- that can mean a lot of different things.

Q Okay.

A A tank or a pipe can have a release that goes on for many years, and I guess that's a single release or at least you have a release from a single location. A single location, yeah.

Q Okay. There -- do you recall a question from Mr. Tremaine about isolating or removing chlorides to prevent groundwater contamination?
A Yes.
Q And is it your understanding that that would likely be referring to chlorides in soils or perhaps the vadose zone, as somebody might call it, versus --
A I think that's what he's referring to. That -- that's what Apache did after this spill, yeah.
Q And that would be distinct from chlorides in groundwater itself?
Those are two different things, yeah. Two -- two different things.
And I think Mr. Tremaine may have asked you a question about removal of chlorides and looking at the distance between two wells. Thinking about the difference between chlorides in soils or the vadose zone versus chlorides in groundwater, would that cause you to think any differently about your responses to those questions?
A Well, the removal -- the approach to removing chloride in groundwater is completely different than the approach to removing chloride in soil. So yeah; you need different information and it would be -- those are two different stories.

Q And if you're talking about a particular area, at least in a plane on the surface, and you're thinking about two different wells, that could be either groundwater chloride levels or chlorides in soils or the vadose zone or perhaps both?

A Well, the wells are showing us chlorides in groundwater; right?

Q Right, right.

A And if we were to need to remove chlorides in soil, that's a different -- that's a different proposition. That's a different --

MR. MOELLENBERG: Right. Yeah.

I think that's all I have. Thank you.

MR. RAZATOS: Thank you. Sorry; I didn't mean to skip you over earlier.

MR. MOELLENBERG: No worries.

MR. RAZATOS: Now we'll turn it over to the commissioners. I'll start with you, Commissioner Bloom, if you have any questions.

MR. BLOOM: Maybe one question. Mr. Grams, thank you for your testimony today. Mr. Tremaine's last question to you was, "Would the current map tell you where to dig your cap?"

I believe you said no; is that right?

THE WITNESS: That's -- I think that's

what he said, yeah.

MR. BLOOM: Okay. And would your plan -- the Apache plan -- moving forward, would that get you to that point or would Apache potentially have to do more work to characterize the situation there?

THE WITNESS: No. Our intent is that -- for that scope of work combined with the pump well -- pump test as a part of it, and soil borings would give us the information we need to fully understand -- fully delineate the perimeter and have enough information to -- to be able to put a well in if we wanted to do some sort of recovery.

So that would be the intent. We never know for sure what we're going to see, and so it's possible there would be some additional questions to be answered.

MR. BLOOM: Okay. No further questions. Thank you for your time.

THE WITNESS: Yep.

MR. RAZATOS: Thank you, Commissioner Bloom.

Commissioner Ampomah, do you have any questions?

DR. AMPOMAH: Yes, I do.

Okay. Thank you, Mr. Grams, for your

testimony. I do have a couple of questions for you. I need to go over my notes here. So with regards to how you developed the ground flow -- the groundwater flow -- is that more or less an analytical approach?

THE WITNESS: Pardon me?

DR. AMPOMAH: Is that an analytical approach that you utilized?

THE WITNESS: A what approach?

DR. AMPOMAH: Analytical.

THE WITNESS: Analytical? Yeah, yeah.

DR. AMPOMAH: So do you believe that if, more or less, you had used more modern tools like a computer modeling, would that have improved your results or understanding?

THE WITNESS: So a true groundwater model requires knowledge of aquifer parameters that we don't know today. And so you have to put in, for example, hydraulic conductivity as a key variable, and that we will determine with a pump test.

So an aquifer pump test, we put in a pump; we run it; we measure the draw-down in the well and in surrounding wells; then you turn the pump off and you watch it all recover, and that tells you about the hydraulic properties. And that provides the data that you can put into a model and do a real

groundwater model. We don't have that data today.

DR. AMPOMAH: And you can do a little bit of history merging to see or more or less to compare the results that you are getting from the lab and then what you are more or less getting down there, too?

THE WITNESS: Yeah. Yep.

DR. AMPOMAH: So would you prioritize doing that, you know, as one of the steps to avoid more -- like now, more or less an additional 20 wells?

THE WITNESS: I would. I am not the one who controls the scope, but yeah, I think that would be a good idea.

DR. AMPOMAH: Okay. So, you know, that is why I still go back to the modeling because if you look at the footprint of the release, is it easy to explain this scientifically, you know, with regards to, like, the elevation of the chloride throughout this whole area?

THE WITNESS: Well, so that's -- you would -- you would have to almost assume that this has been going on a little bit longer than since 2019 when I look at it.

DR. AMPOMAH: Yeah. So the extent of the problem is not really known at this point?

THE WITNESS: Well, but if you look -- look at the map, you -- we have wells that are low all around it. So we know it's -- we have it defined geographically. So we do have that part fairly well delineated. There's some uncertainty with our dash lines; we're going to fill that in with the additional wells, but really, it's pretty well-defined.

DR. AMPOMAH: Okay.

THE WITNESS: It's not perfect, but realize this is all occurring 60 feet down and you can't see it, so we make inferences based on our -- our data.

DR. AMPOMAH: Okay, so if you look at the results that have been coming in since 2019, don't you believe that from NMOCD's point of view, they are trying to do extensive due diligence? You know, because if you see some of these chlorides in nearby wells of residents in the area, that is a little bit of a problem. So would you agree to that; that we are trying to do due diligence here?

THE WITNESS: I think that it's been mutual. I think Apache and OCD have been trying to do due diligence.

DR. AMPOMAH: Then a question I have for you is that do you believe Apache and NMOCD do

have the same objective with this --

THE WITNESS: I -- for the most part they do. I'm speculating a little bit on their objective, but yeah; I think they do. Over -- for the most part, you know, if you really look at the communication throughout this release, there's been a lot of collaboration and agreement between Apache and OCD.

It really wasn't until this last scope of work in July or April, May, June, July that it became a disagreement. Up to that point, they were working collaboratively.

DR. AMPOMAH: Okay. Just to clarify and solidify my point here --

THE WITNESS: I would say.

DR. AMPOMAH: -- does Apache's plan include the pump test and then also the modeling -- subsequent modeling?

THE WITNESS: We didn't spell that out, but yeah. We -- that's something that we can do. The -- the type of modeling that is always done as a part of a pump test gives to modeling the draw-down and the aquifer response. A full contaminant transport model is a different thing and that was not part of our proposal, so that's something we would

have to discuss.

DR. AMPOMAH: Yeah.

THE WITNESS: There's two -- there's different --

DR. AMPOMAH: That is the one that I'm looking for, though.

THE WITNESS: That's the one you're looking for?

DR. AMPOMAH: Yeah, exactly. You know, so if you look at -- and I really do like the map that is on 719 out of the 733 document, so thanks for taking time to take us through that.

Do you believe that a stage-wise approach, you know, is more warranted here than more or less -- I don't know. In terms of the condition, I don't know if, let's say, NMOCD is requesting that you drill all these wells at once or we go step-wise. Can you speak to that?

THE WITNESS: Well, you know, if you put in 20 wells at once, you'll probably find that some of them were not necessary. If you go in a step-wise approach, you take the information from each well, you reevaluate, and then you put your next investigation location in depending upon what you know, so it allows you to consider and plan a little

more deliberately.

And so now -- I mean, I'll just go out on a limb and say if resources were unlimited, then we could go in and put a hundred wells in and we would know everything we need to know. But given that resources are limited, then we take a step-wise approach and we try to be reasonable in what we put in and what we do.

DR. AMPOMAH: So Apache's and NMOCD's plan; which one is step-wise approach?

THE WITNESS: Well, I think -- I mean, for example, one of the things that OCD may -- went to great pains to point out is that every communication says, you know, "You can do this but you might have to do more." Right? We -- we know that.

So to me, Apache's plan would be -- consider it phase 1; okay? And if it tells us everything we need to know, hallelujah; we're done. But if not, we go back and we would have to do more. It would be a step-wise approach, and maybe phase 2 would be the rest of the OCD wells.

DR. AMPOMAH: Has NMOCD and Apache actually discussed both locations? I'm referring to the figure -- what is the figure number? -- but the figure on 719 where you show all the wells blue and

then green.

THE WITNESS: Blue and green?

DR. AMPOMAH: So has NMOCD and Apache actually discussed this?

THE WITNESS: No. That was the frustrating point. The discussions were cut off at that point, so it was not discussed.

DR. AMPOMAH: So do you believe that a discussion between Apache and NMOCD to optimize these locations is a must-happen kind of --

THE WITNESS: I think that would be a good idea, yeah.

DR. AMPOMAH: Yeah. So who put this one first? Is it NMOCD or Apache?

THE WITNESS: Well, so my understanding -- I -- I wasn't involved at the time. My understanding is that there was a discussion between NMOCD and Apache. As a result, Apache prepared a written proposal for 5 wells. OCD came back and said, "Well, in addition to those 5, we want 14 more."

And Apache came and said, "Well, how about if we do 7?"

And then the discussion -- OCD just said, "We don't want to talk to you anymore."

DR. AMPOMAH: Okay. So then I don't think, then, Apache can say that NMOCD is requesting more -- like, these additional wells on top of what you already more or less presented in this figure.

THE WITNESS: Well, no. There was a written proposal for 5 wells, and then OCD responded in writing with an additional 14 on top of those.

DR. AMPOMAH: Okay.

THE WITNESS: My understanding; someone could --

DR. AMPOMAH: Now, let me ask; has there been any baseline data collected in this area? You know, from -- let's say, do we know the mineral composition of the groundwater in this area? Not necessarily with respect to the timeline, but has there been any data collected that can be set as the baseline data?

THE WITNESS: I'm not aware of it. You know, we -- we have the existing wells 11 and 12, which are fairly far upgradient, but no; I don't know of -- of that. And there can be quite a range of differences locally in the Ogallala in salinity. So -- but no; I'm not -- I'm not aware of that. I'm not aware of that.

DR. AMPOMAH: So --

THE WITNESS: It's certainly not 14,000, so -- yeah.

DR. AMPOMAH: So prior to, let's say, the hearing, did Apache try to get NMOC to discuss this particular chat? You know, this map where you have multiple wells proposed over each other?

THE WITNESS: This map was prepared after the discussions were cut off.

DR. AMPOMAH: After that. Okay, okay. So, then, definitely there has not been any reconciliation between NMOCD's proposed well locations and then that of Apache, so that has been established.

Now, do you know the time range with regards to when Apache first saw or recognized the release and then the time there was a notified to -- no; let's say the time of the remediation action -- the first remediation action?

THE WITNESS: All I know is from reading the documents that we've seen, but I believe they began to do the -- this is Bruce's area. I believe they began the excavation within days of finding the release. So I think it was done right away. Not all of it. Some of it continued into the next summer, so it occurred over a period of time.

DR. AMPOMAH: And Apache's position is

this is a single release? I know there was a follow-up question on that to clarify. Do you believe -- is it Apache's testimony or your testimony that it's still a single release?

THE WITNESS: I don't know enough that I can say that for sure.

DR. AMPOMAH: Okay. Now, we've seen changes in the concentration of the chloride, you know, from -- let's say from '19 and even '23 to the latest report that was provided to NMOCD.

Does Apache recognize the problem that -- you know -- that is at stake here? In terms of the increment in the chloride concentration over time? Even though you've done some remediation efforts, but there's still increment in that.

THE WITNESS: The -- the remediation was all done on soil; right?

DR. AMPOMAH: On soil.

THE WITNESS: And right now, we're looking at groundwater data.

DR. AMPOMAH: So nothing has been done on the groundwater?

THE WITNESS: On the groundwater? No, nothing has been done on the groundwater remediation.

DR. AMPOMAH: Okay, okay. And then you

were saying that when the latest report came through, Apache has not done anything with regards to any remediation at all with the --

THE WITNESS: No. Well, you know, the first step is -- well, putting in a groundwater remediation system is very complicated and requires a lot of information and a lot of planning. And that's not something that you just do short notice, so that's something that has to be planned.

And the first step is the pump test. We keep talking about the pump test, but that's typically the first step. So that tells us what size of a pump we need.

For example, how much water are you going to be able to extract from a well? Is it 10 gallons per minute? Is it a hundred gallons per minute? Five hundred? How much? And that determines what size of a pump you need. That determines what size of a well you might need. There's a lot of information that you have to do to properly plan a remediation system.

DR. AMPOMAH: You know, based on your experience, if you look at going around digging holes compared to more or less coming up with a comprehensive plan to remediate what is going on in

the groundwater, you know, how would you rate that compared to continuously punching the holes around?

THE WITNESS: Well, so, you know, one thing that you look at is -- is what is at risk. You know, if there were a residential community adjacent to this well site pumping water for drinking water and that's their sole source, that is a higher level of risk than out in a oil field where there's -- so it might determine a different type of action.

DR. AMPOMAH: So there's no community in the area sourcing their water from, let's say, nearby in this area?

THE WITNESS: Not -- not at this location, no.

DR. AMPOMAH: Okay.

THE WITNESS: The -- the one -- the one receptor is the windmill well. And that -- I don't want to minimize that; that's significant, but that's the receptor that's been identified.

DR. AMPOMAH: Okay. Thank you, sir.

THE WITNESS: Yeah.

MR. RAZATOS: I have a few questions as well.

THE WITNESS: Okay.

MR. RAZATOS: And thank you for your

testimony today. We appreciate it.

THE WITNESS: Thank you.

MR. RAZATOS: You mentioned early on in your testimony that there is a difference in the way sampling was done between March and October. I believe October's was passive sampling and March's was low-flow sampling; did I get that correct?

THE WITNESS: That's correct.

MR. RAZATOS: Okay. Excellent. I believe you mentioned that you do not feel that this has caused a difference in the numbers, but why did you feel that you had to mention that part? As far as it -- what's so significant between the two sample procedures that would -- for someone who is a hydrologist?

I'm not a hydrologist; I'm not a geologist; I'm not a hydrogeologist, so what does that trigger in your head as a hydrologist geologist?

THE WITNESS: Well, it's just -- it's a different method. So instead of using a pump that pumps a low volume of water, we put in a -- it's called a HydraSleeve. It goes into the well, it sits for 24 hours, and then you remove it.

So it's a little bit like -- I don't know -- I baked a cake with my regular oven and I used

a convection oven. Did it -- is it a little bit different? I -- I don't know. It -- it's something that triggered. When I saw the high numbers, I thought, "Oh, man. Does this new sampling technique cause the difference?"

All the reading I've done on the technique says it does not. I did talk to Mike Bratcher at OCD, and he is familiar with this and he was -- said he likes this method, so I don't think that was it, but I felt it was worth mentioning.

MR. RAZATOS: Okay. Okay. Thank you for clarifying that. I'm going to be working off of Apache Exhibit C-4.1, which was the more updated version, I believe, of the contouring and everything.

You mentioned that a pump test will give us better modeling; it will tell us the hydraulic properties in the area. My question, then, to you is where would you, in your professional opinion, put this pump test?

Is that where you were talking about TMW-27 being a bigger bore and -- because you had said that the proposed TMW-27 is a larger-diameter well for recovery, and then you stated that it may or may not be useful in the long run, but is that where you would propose putting this pump test?

THE WITNESS: The initial thinking was that we wanted to have a well that was located in between the identified high concentrations at 17 and the suspected source area up by Number 7. It's a puzzle, and we -- we would put in 27 with the expectation that it hits high levels of chloride.

Now, we don't know that for sure 'cause we haven't done it yet, but the thinking is that that would be a good place to recover. But we might have to go further downgradient looking at the well, and that's been alluded to by other questioners. It may be that something right next to 17 would be a better place.

So we have to -- that's more that we have to evaluate.

MR. RAZATOS: Okay, so then just help me figure out where you mentioned about the aquifer pump test giving us better modeling. Where would you be doing this test?

THE WITNESS: Well, that would be at 27.

MR. RAZATOS: It would be at 27? Got it. Okay.

THE WITNESS: We need a larger-diameter well to get the pumps and pressure transducers and

things in the well.

MR. RAZATOS: And I may have not asked the question appropriately, so I apologize. So that was my point. Okay; 27 is where Apache proposes to do this pump test?

THE WITNESS: Yeah, yeah.

MR. RAZATOS: Okay. On this particular page, if I've understood correctly because you stated that it was created after communication with the OCD had stopped, the five wells that Apache is proposing are the blue wells; correct?

THE WITNESS: Well, the original 5 were MW-25 through MW-30 -- 29 -- 25 through 29. And then OCD asked for 14 more.

MR. RAZATOS: Okay.

THE WITNESS: And Apache came back and said, "Well, we agree with two of those," and so then Apache had seven on their list.

MR. RAZATOS: Okay, so that includes --

THE WITNESS: So you could count 7 blue dots, and there would be 14 green dots, but 2 of the locations were agreed between, so they're showing up as blue.

MR. RAZATOS: So the added two are TMW-30 and TMW-31, which correlate with OCD 39 and OCD 42?

THE WITNESS: Correct.

MR. RAZATOS: Okay. Great. Thank you. Now, as was mentioned, there's urgency in this because this commission is set to make sure that we protect. Protect the environment; protect our water; protect as much as we can within our purview.

In looking at the last set of results that Apache got from the testing of the water that your company put together and showed on this particular map; it is disconcerting that some of these -- as you said, half of them went up; the other half kind of stayed the same or dropped a little bit, but the ones that went up went up quite significantly, especially 14, 15, 17 and 18.

When we are looking at the windmill, 5 went up as well -- is going up; 5 is going up also; the windmill is also going up. There is a gap between that 17 and that windmill. Being that animals are drinking -- cattle are drinking from this water that's coming out of the windmill and we have such a high concentration, would it not behoove to put a well somewhere within that space?

That looks like it's more than 300 yards difference between the well and where TM -- I'm sorry -- the windmill and where TMW-17 is at. In your

opinion, would it not behoove to put a well in there to start monitoring what's progressively flowing towards that windmill?

THE WITNESS: Yeah, you could make the case to do that. That wasn't in either of our proposals, but that's -- you could make the case that that should be done.

MR. RAZATOS: Okay. And again, as I mentioned -- thank you for answering that one. As I mentioned, I'm not a hydrologist and I'm not a geologist. So could you just explain to me -- and you may not have the answer for this -- why are we seeing such sharp increases? In 17 it's almost threefold, and in 18 it's almost -- it's over eight times more.

I understand water moves; I understand -- I have enough chemistry to understand that chlorides will filter through with water. But in your opinion, what do you think is causing this?

THE WITNESS: You know, I -- I honestly really don't know.

MR. RAZATOS: Okay.

THE WITNESS: I -- I don't know.

MR. RAZATOS: Okay.

THE WITNESS: It's not easy to explain.

MR. RAZATOS: It's a conundrum for us

as well.

Okay. Excellent. Those are the last questions that I have myself. Anybody else have any other questions for Mr. Grams? Okay. No more questions.

Well, make sure you turn on your microphone, Mr. Moellenberg.

MR. MOELLENBERG: I apologize again.

MR. RAZATOS: No problem.

MR. MOELLENBERG: Sorry about that.

MR. RAZATOS: Can we let Mr. Grams step down for the evening?

MR. MOELLENBERG: Yes.

MR. RAZATOS: Okay. Excellent.

Mr. Grams, thank you so much. We appreciate it.

I think this is a great natural stopping point for all of us. It is past five o'clock, so we can definitely pick up tomorrow at 9 a.m. unless there's any objections to that. Excellent. Thank you, everybody. Have a good evening. We'll see you -- oh.

Mr. Moellenberg?

MR. MOELLENBERG: Yeah. Just to clarify, we don't have any more witnesses on direct,

so I believe we would be picking up tomorrow with the Division's witnesses.

MR. RAZATOS: Correct.

MR. MOELLENBERG: Right.

MR. RAZATOS: Yes. Okay. Excellent. Thank you, everyone. Have a good evening and we'll see you tomorrow at 9 a.m.

(Whereupon, at 5:03 p.m., the proceeding was concluded.)

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CERTIFICATE

I, JAMES COGSWELL, the officer before whom the foregoing proceedings were taken, do hereby certify that any witness(es) in the foregoing proceedings, prior to testifying, were duly sworn; that the proceedings were recorded by me and thereafter reduced to typewriting by a qualified transcriptionist; that said digital audio recording of said proceedings are a true and accurate record to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.



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Notary Public in and for the
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PAULA GEWERTZ

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STATE OF NEW MEXICO OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO OIL CONSERVATION COMMISSION EVIDENTIARY HEARING	) No. 24912

Record of proceedings in the hearing of the above-entitled cause, in the City of Sanfa Fe, County of Lee, State of New Mexico, before Victoria D. Rocks, CSR, Notary Public, commencing at 10:00 o'clock a.m., on the 17th day of January, 2025, A.D.

APPEARANCES:

NEW MEXICO DEPARTMENT OF JUSTICE
MR. DANIEL R. RUBIN
408 Galistoeo Street
Santa Fe, New Mexico 87501
drubin@nmdoj.com

STATE OF NEW MEXICO OIL CONSERVATION DIVISION
MR. CHRISTOPHER L. MOANDER
MR. JESSE K. TREMAINE
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505
Chris.Moander@emnrd.nm,gov
jessek.tremaine@emnrd.nm.gov

HOLLAND & HART, LLP
MR. ADAM G. RANKIN
110 N. Guadalupe Street, #1
Santa Fe, New Mexico 87501
agrankin@hollandhart.com
SPENCER FANE
MS. SHARON T. SHAHEEN
325 Paseo De Peralta
Santa Fe, New Mexico 87501
sshaheen@spencerfane.com
PADILLA LAW FIRM, PA
MR. ERNEST L. PADILLA
PO Box 2523
Santa Fe, NM 87501
padillalawnm@outlook.com
HINKLE SHANER, LLP
MS. DANA S. HARDY
218 Montezuma Avenue
Santa Fe, NM 87501
dhardy@hinklelawfirm.com

APPEARANCES:

BEATTY & WOZNIAK, PC
MR. RYAN LEE McKEE
1675 BROADWAY, Suite 600
Denver, CO 80202
rmckee@bwenergylaw.com
GALLAGHER & KENNEDY, PA
MR. DALVA L. MOELLENBERG
MS. SAMANTHA H. CATALANO
1239 Paseo De Peralta
Santa Fe, NM 87501
dlm@gknet.com
samantha.catalano@gknet.com

I-N-D-E-X

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COMMISSIONER RAZATOS: This is the Oil Conservation Commission meeting that is a continuation from yesterday January 16 and 17, 2025.

We are here in case number 24912, which is the application of Apache Corporation for an adjudicatory hearing to contest the Division's conditions of approval on Apacheche Corporation's County, New Mexico.

This is an evidentiary hearing. We will finish up. Just to make sure, are all parties here?

MR. MOELLENBERG:

MR. MOELLENBERG: Apache is present, ready to go.

COMMISSIONER RAZATOS: Mr. Tremaine.

MR. TREMAINE: Jesse Tremaine for the Oil Conservation Division, again attending virtually.

COMMISSIONER RAZATOS: Can we also just show that the commissioners are here as well.

COMMISSIONER AMPOMAH: Dr. William Ampomah, present.

COMMISSIONER BLOOM: Good morning. Greg Bloom, B-l-o-o-m, designee of the commissioner of public lands.

COMMISSIONER RAZATOS: As I said yesterday, I

am Gerasimos Razatos. I am the acting Division director for the OCD, and I am also Commission Chair, and I am present as well.

Yesterday we finished with the Apache witnesses. Just to make sure, Mr. Moellenberg, are you all complete with everything you wanted to present?

MR. MOELLENBERG: Yes. Mr. Chair, as far as our direct. As I indicated yesterday, it's possible we may have some rebuttal and then again we talked about the possibility yesterday of how to deal with the supplemental conditions.

COMMISSIONER RAZATOS: So we'll deal with that later. As far as your direct, you guys --

MR. MULLENBERG: As far as our direct, we're complete and ready to move on.

COMMISSIONER RAZATOS: Mr. Tremaine, are you ready?

MR. TREMAINE: We are ready. Mr. Chair, I would like to update the Commission.

The parties have been at work discussing some next steps to I think hopefully address some of the concerns raised by OCD earlier in the hearing. And so it's my expectation that when we get to that

point, I believe we're going to be able to withdraw OCD Exhibit 9. The original conditions are included in the slide show for Mr. Powell. So I think that will work. We do feel the need to continue expressing OCD's concerns with the sampling reports. We're going to go through the evidence as we have prepared to present it, but I do expect some at least temporary resolution on the part of it.

And I think we could resolve that objection and hopefully position this hearing for a potential order on the original conditions as we have discussed.

COMMISSIONER RAZATOS: So if I am understanding correctly, Mr. Moellenberg, both of you, we may not have to continue this case further on Monday.

MR. MOELLENBERG: That could be based on what Mr. Tremaine has said. If the Division withdraws the supplemental conditions, that may resolve this issue, and we can go on to the rest of it and see how it goes.

COMMISSIONER RAZATOS: We'll carry on. Mr. Tremaine, we're ready for your witness.

MR. TREMAINE: Thank you, Mr. Chair, Commissioners and other parties. The Oil

Conservation Division calls Rosa Romero.

COMMISSIONER RAZATOS: Ms. Romero, we'll have the court reporter swear you in. The witness has been sworn in. Mr. Tremaine, you may begin.

ROSA ROMERO,

called as a witness herein, having been first duly sworn, was examined upon oral interrogatories and testified as follows:

DIRECT EXAMINATION

BY MR. TREMAINE:

Q. Good morning, Ms. Romero. Could you tell us where do you work and what is your job title?

A. My name is Rosa Romero. I am the OCD's environmental bureau chief for approximately the last two and a half to three years.

Q. Are you testifying today on behalf of the Oil Conservation Division?

A. Yes.

Q. And did you prepare a resume for submission in this hearing?

A. I did.

Q. Is that labeled as OCD Exhibit number 1?

A. Yes.

Q. Is that resume true and accurate to the

best of your knowledge?

A. Yes.

Q. Could you please briefly describe your work experience for the Commission.

A. I have a bachelors in science in wildlife with primary research in aquatic health habitat.

Upon graduating from Western New Mexico University, I was employed with the U.S.D.A. forest service in a large scale aquatic surface water habitat management position. From there I also worked for the New Mexico environment department as an environmental specialist.

While I had a wide range of duties, my primary other focus was ground water protection, waste water management and participated in large scale rule changes and regulatory compliance with the ground water issues.

I was also employed at the State Engineer's office where I reviewed hydrologic reports. I did some hydrologic modeling and generally served as a water master for the southeast basin until my employment here at OCD.

Q. Ms. Romero, in your various roles how many site characterizations or investigations

approximately have you reviewed or conducted?

A. Hundreds. I would be hard pressed to put a specific number on that. We didn't keep track of those, but a significant number of via either permitting, reviewing, those kinds of reports and, that sort of thing.

Q. Have you ever testified before the Oil Conservation Commission before?

A. I have not.

MR. TREMAINE: Mr. Chair, I would like to share screen to lay the foundation for a couple of exhibits.

COMMISSIONER RAZATOS: Give him access, please.

BY MR. TREMAINE:

Q. Ms. Romero, I am directing you to my shared screen. Do you see that?

A. Yes.

Q. Is that the exhibit that we referenced as Exhibit 1, your resume?

A. Yes.

Q. Did you also prepare a time line presentation in preparation for this hearing?

A. I did.

Q. And is this OCD Exhibit number 2, which I

have on the screen here?
A. Yes.
Q. We're going to come back to this one. OCD Exhibit number 5 labeled as of February 9, 2021 report, do you recognize this document?
A. I do.
Q. Was this prepared by you or your staff in preparation for the hearing by pulling it from the OCD permitting website?
A. Yes.
Q. I would like to move on to Exhibit 6 labeled Scope of Work for Additional Investigation Exhibit 6 from May 9.
Do you recognize this document?
A. Yes.
Q. Similarly, was this prepared or packaged by you or your staff in preparation for the hearing?
A. Yes.
Q. And was this pulled from OCD permitting?
A. I believe this one was pulled via e-mail, but it is available on permitting.
Q. Thank you. A quick clarifying question on this one. Did you hear testimony yesterday talking about a May 8, 2024 report or document submitted by

Apache?

A. Yes.

Q. And this one is labeled by OCD as May 9th, correct?

A. Yes.

Q. Just to clarify for the record, we're talking about the same document?

A. It is the same document.

Q. Exhibit number 7 we have labeled as October 23, 2023, Apache PD work plan.

Do you recognize this document?

A. Yes.

Q. And is this the same document that was referenced yesterday as Apache's response to OCD's conditions of approval?

A. Yes.

Q. And was this document prepared for hearing by you or your staff?

A. Yes.

Q. Are the exhibits that we discussed, Exhibit 2, 5, 6 and 7 true and accurate to the best of your knowledge?

A. Yes.

Q. Are there any corrections or changes that

you need to make to any of the exhibits before we begin?

A. No.

MR. TREMAINE: Mr. Chair, I move admission of OCD Exhibits 1, 2, 5, 6, and 7.

COMMISSIONER RAZATOS: Mr. Moellenberg, any objection to that?

MR. MOELLENBERG: No objection subject to there's a long narrative on the site history, and I would just mention the fact that there probably are some specific communications that may be the best evidence of that as opposed to these notes. But no objection to their admission.

COMMISSIONER RAZATOS: They will be admitted, Mr. Tremaine.

MR. TREMAINE: Thank you, Mr. Chair.

BY MR. TREMAINE:

Q. Ms. Romero, I'm going to move back to OCD Exhibit number 2. Could you please summarize for the Commission what this exhibit is and the purpose of the exhibit?

A. The purpose of the exhibit was just to highlight key communications. The chronological events as from OCD's perspective. Much of this

information is probably a duplicate from what we already heard from Apache. So it is not intended to go into a lot of detail on these specifics over technical details. It's a time line.

Q. What I would like to do is move through the presentation kind of slide by slide. So I'm directing you to page seven of the packet.

This is OCD Exhibit 20007. Ms. Romero, could you please summarize the significance and importance of the information contained on this slide?

A. As stated previously, some of this is paraphrased and some of this is quotes from some of these reports.

This is intended to be more of s summary. So here we have some direct quotes from the remediation plan. This was the original reporting of the spill. As stated in the plan, it was due to a corroded isolation valve, reported as a major incident.

At this time the report only indicated that it was a soil impact.

Q. Ms. Romero, on slide 8, page 8, please summarize the contents of this slide.

A. These were the initial test sampling results from the soil impact directly after the incident occurred.

It does show that we have some elevated chloride levels above corrosive criteria at that time.

Q. Please summarize the contents of slide nine.

A. This is reference to what was originally proposed in their remediation plan. To summarize, it was a deep soil excavation core sampling.

There were some monitoring wells proposed at that time, liner installation, back filling procedures. At this time there was no ground oil concern, oil impact only.

Q. At this point in time, was OCD's approval of installation in the liner consistent with OCD practice?

A. At that time, yes.

Q. Moving on, please summarize the contents of slide ten.

A. This was some addendums that were made to the original remediation plan. Adjustments from the original plan, sampling expansions. Just approaches

for chloride containment.

As previously stated in testimony heard yesterday, there's a lot of general legal statements of liability that are included in all these e-mails as well as original one.

Q. At this time, is it accurate to indicate that we were seeing chloride results elevated above the remediation threshold?

A. Yes. This addendum in particular was more centered around the excavation, what portions were getting excavated in order to dig out the chlorides that were being seen on samples.

Q. Move on to the continued slide to summarize the information on slide 11.

A. There is the closure report that was previously referenced. The closure report again really only indicated that we were looking at soil contamination at the time.

Confirmation was done via an email with a former employee. There were small amounts of toluene in some of the samples, but at the time the small amounts were not something that would have had any major qualifiers.

We had some qualifier issues that were

outside of the lab control limits, but overall if this was a soil remediation only situation it would have achieved closure at that point.

Q. At the time of the remediation closure report, I believe you just said that if it was the soil remediation it would have been closed.

Is it accurate to state that absent subsequent information related to ground water impact, this site likely would have been closed?

A. The site was actually closed based on the information they had available to them at the time.

Q. Move on to slide 12. Please summarize the information here in 12.

A. This was annual ground water monitoring. Again, these were brief, brief portions of it that we wanted to highlight.

This was initially after the closure of the C 141, part 429 incident. There were some indications that some sampling didn't occur at the windmill, but there were renaming issues. The highlight here is we're seeing chloride concentrations increasing, and the toluene analysis was not detected, but also exceeded lab control limits.

Q. Moving on, please summarize the contents of slide 13.

A. This was the next sampling event that occurred. Primary thing we're see here is chloride concentrations were now being detected above the regulatory limits in two and four as well as the windmill.

The sample was analyzed. Outside of the whole time we see issues with sampling again. TDS for the windmill was listed incorrectly on reports that were submitted. The actual TDS lab sample results were I believe 794, not the 781 as indicated in their documentation.

Q. And moving on, please summarize slide 14 for us.

A. This was the next sampling event. This occurred approximately a year later. Chain of custody was not included in the laboratory analytical report for the sampling event, but we continue to see chloride elevations in the same locations.

Q. And the excerpts on this slide, the maps that are pulled, these are pulled directly from that annual ground water monitoring report?

A. Yes. These have all been pulled from Apache's information.

Q. And at that time am I understanding this correctly that these are the four monitoring wells that were in place up to the date in February of 2022?

A. Yes.

Q. I'm going to move into a new stage here. Please summarize for the Commission how OCD first started communicating with the landowner?

A. Just real brief. I didn't want to go into extreme detail on the communications that were had, just to show that we did have raised concern about the site conditions and the sampling results.

At that time there was no observed leaks, no petroleum smell. So there was no reason to think that we didn't close things appropriately. But we were also looking at potential impacts and just kind of spurred OCD to look at the site and surrounding area in more detail.

Q. Is it accurate to state that at that first communication OCD assessed the site for ongoing surface releases?

A. We did.

Q. Moving on to the next slide, slide 16, please summarize the next step in the process.

A. This is a continuation of some of those communications. Again, we were really just looking at expanding the area that we had originally been looking at to pinpoint where the concerns were.

Q. Was this the point in time when OCD began realizing that there was a ground water concern as opposed to ongoing or a new surface release concern?

A. Yes, this is where conversations started.

Q. Moving on to slide 17, please summarize the next step or the results of those initial conversations.

A. Further efforts in soil and ground water investigation, we had confirmed chloride in all of the additional wells at that point.

So they did further vertical delineation at the original site location and placed two additional monitoring wells.

Q. These additional labeled on the map like this SP locations, what do those reflect?

A. There were some naming issues back then. So I believe those were the additional because they changed them from SP to TMW, but we see the

corrections on the next slide.

Q. Moving on to that next slide, slide 18, please summarize that to the Commission.

A. The BHs were additional bore holes. The SPs were soil analytical results. And the TMWs here on the additional wells were above and below the original site.

So OCD did not initially receive confirmation that five and six were drilled until the scope of work for additional work were received in May of 2023. So they did drill the wells. We just didn't have communication on that until later.

Q. So in the previous flag, communications started in June and picked up in July of 2022, correct?

A. Yes.

Q. Once we get to this stage of the slide, it's really in January of 2023 when we have the initial additional wells going into place?

A. Yes.

Q. I'm going to move on to slide 19. Please summarize the contents of this slide.

A. This is just a short comparison of the ground water monitoring reports received in 2022.

Again, this is short versions.

We did see some issues with the chain of custody again. So some of the sampling name changes and totals, samples collected. There's discrepancies with naming.

This is maybe some of the confusion of number TMW. We have all named them something different it appears.

Q. On the previous slide, Ms. Romero, you indicated that there was confirmation that certain bore holes put in in January, is this when that occurred?

A. Somewhere in between. We didn't actually get the reports of those results until the additional scope of work came in in this annual report, yes.

Q. Moving along to slide 20. Please summarize this content for the Commission.

A. At this point OCD required to meet virtually with Apache and their consultant.

The high chloride in some of the exterior wells were not really making sense. So we discussed adding an additional four wells.

We discussed what type of sampling would

be needed in those. We're looking at exterior boundaries at this point. However, the meeting did end well. Everybody agreed on the placement of those wells during that meeting, just didn't really have any answers to any of our questions at that point.

Q. Is it accurate to state that at this point in time the delineation had not expanded far beyond the original release site?

A. No, we had not looked far beyond the original release site.

Q. Moving on to slide 21, please summarize this slide for us.

A. Let's see. This was a brief summary of the analytical results from the previous meeting. Chain of custody indicates samples collected were not preserved for hydrochloride detects.

It does not include toluene results, but we also continue to see chloride contamination, and we were notified that they would be doing additional sampling.

Q. At this point in time we're a year out from when the communications really picked up, correct?

A. Yes.
Q. The sampling at that point in time had still not really expanded beyond the original investigation or site of investigation?
A. Only slightly.
Q. Moving on to slide 22, please summarize the contents here for us.
A. Upon reviewing the results, OCD requested an additional meeting with Apache. This is just a summary, but what I wanted to really highlight so that we really emphasized that we needed a comprehensive delineation.

Follow the outside boundaries and drilling schedules, analytical results. We were starting to see results that would indicate that possibly we had a secondary release. And we were pushing for that comprehensive delineation to answer that question or not.

We did not get any clean answers from the sampling that occurred, but we did really stress the need for that comprehensive delineation. It was discussed yesterday. This is the point in which Apache agreed to the 11 through 16 wells. OCD also insisted on number 17. Also important to note that

17 has been the highest to date.

Q. To reiterate, just to clarify, from that meeting did Apache propose those wells except for 17 or was that agreed to at the meeting?

A. It was agreed to during the meeting. And also attached the scope of work via e-mail. They also submitted, it was a short e-mail proposing those additional wells.

OCD responded by e-mail and requested 17 as the additional one.

Q. That TMW 17 was requested by OCD in the response to the early November scope of work from Apache?

A. Yes.

Q. As we work through the presentation up to now how would you characterize OCD's level of concern as you started to get additional information?

A. At this point OCD was very concerned. It was again stressed that the comprehensive delineation would be absolutely necessary for decision making processes.

Q. I would like to move to slide 23. Please summarize this one for us.

A. Just a very brief, we did have some additional landowner contact at that time. Apache stated previously did install additional wells beyond the ones that we were required.

We did see the highest levels in well 17. But with all the additional wells that we saw, we saw additional impacts in significant numbers of them.

Q. Did the information you received during this date range alleviate any of OCD's concerns with the site?

A. No. At this time I felt we had probably more questions than we did previously. The sporadic chloride results that we were getting impacts different wells was not making sense, especially in comparison with the flow maps that we had been provided.

Q. As we look at the date range September 4, 2023, getting to January of 2024 did OCD have any concerns or give any consideration to the time line involved of all these communications?

A. We did press multiple time lines. We were following up via e-mail. We were pushing for things to move quickly before.

Q. In your experience and under part 29, what is OCD's baseline expectation for a site characterization for a new release absent any extenuating circumstances or extensions?
A. 90 days.
Q. 90 days?
A. Yes.
Q. I would like to move to slide 24. Please summarize this next slide for us.
A. After reviewing the results, again, we requested an additional meeting. We indicated to Apache that we're still unknown with our boundaries and still unknown if we had any cause. Still unknown if we had any definite modeling.
The report received included sampling results, but did not provide any plans for any additional anything at that point. So we were raising concerns for what next steps would look like.
Q. Did Apache -- I believe you just indicated that Apache didn't provide additional delineation plans at this point? Did I understand that correctly?
A. Yes.

Q. Did Apache want to continue ground water monitoring for some period of time?

A. They did. It was not specified in this particular report. They just indicated that they would continue monitoring.

Q. At this point in time in reviewing the samples and results that OCD had available, did you feel that OCD was able to reasonably identify potential sources of contamination that were showing up in their sample results?

A. I did not.

Q. I would like to move to the next slide, 25. Please summarize this one for us.

A. So at this time Apache proposed an additional scope of work. The scope of work was again intended to locate those external boundaries. They proposed four additional monitoring wells and continued to monitor the existing wells. Some of those were intended for background.

Q. At that time that scope of work from April of 2024, was OCD satisfied with the efficacy of that scope of work?

A. At this time OCD instead of approving or

denying followed up with an additional meeting. The concern was that this would not likely give us enough detail to make a decision.

Q. Moving on to slide 26. Please summarize the slide and OCD's response to that April scope of work.

A. We had the conversation that we would plan on approving the additional wells they proposed, but we also indicated that more drilling was needed, that we were willing to work with anything additional that they might add to the scope of work while in the field as needed to fully delineate.

Q. At this time at the meeting in May, I see here in your summary the statement that OCD felt it was necessary to document and issue formal requirements.

How would you characterize OCD's view of the situation and how it was handling the response at this point?

A. Most of the conversations and communications were happening via e-mail. At this point we felt it necessary to have a more formal record of the conversations and the proposed scopes that were being submitted. So we requested that

everything be handled through OCD online permitting.

Q. I would like to move on to slide 27. Please summarize this one for us, Ms. Romero.

A. So Apache did come back and propose wells and sampling to occur after the discussion about delineation at that meeting.

They did agree to do all 31 and 03 constituent at the windmill well.

Q. We have talked about this earlier, the May 9, 2024 report.

A. The scope of work, yes.

Q. This is the scope of work we reference in OCD Exhibit 6 and also contained in Apache's exhibit?

A. Yes.

Q. Just to clarify for the record here. I think we're moving on to slide 27. If you can please summarize this one for us -- strike that.

You just answered this question. I interjected with the other slide. Is there anything else that you feel is necessary to clarify for the Commission that is contained on this slide?

A. Not at this time.

Q. Moving on to slide 28. Please summarize

the contents here for the Commission.

A. Again, we have a comparison from previous reports. This was an overview of the scope of work we have seen to date. Chloride concentrations.

The more wells we're looking at, the larger the extent of chloride contamination.

Q. So up to this point in time as I understand the slide, every time you got more wells we get more chloride hits.

Up to this point have the samples satisfied OCD's concern in delineating the external perimeter of the impacted area?

A. We have not.

Q. I would like to move on to slide 29. If you could, please summarize this one for us.

A. It is a continuation of the previous slide. We do continue to have chain of custody issues, some improper conversions and so our decision making is still unclear at this point.

Q. Thank you. Moving on to slide 30. Please summarize or describe the follow-up meeting as a result of that information on the last slide.

A. Brief conversations. OCD did communicate that what was provided would not be sufficient to

make any additions on the site and that a comprehensive and complete delineation has not been provided to date.

We did not believe the scope of work was sufficient to be able to do that. As this was submitted now via permitting, we indicated that we would approve or deny that application via permitting and indicated that conditions of approval would likely be attached if it was to be approved.

Q. Ms. Romero, did you attend the hearing yesterday?

A. I did.

Q. Did you hear testimony or review the submissions to the effect that Apache may have felt that there was an agreement as a result of these May discussions?

A. To some extent. We communicated well during the meeting. It was agreed upon that they were willing to work with OCD in what we wanted to see as far as what that delineation looked like.

I felt that OCD communicated effectively that we were looking for that complete delineation and looking for a wider scope to be able to obtain that.

Q. Do you feel that it was communicated effectively during this period of time that OCD wouldn't necessarily -- that OCD may approve the submission with conditions of approval?

A. We did.

Q. Earlier in your testimony you had indicated that OCD had started transitioning to document and issue approvals to the OCD permitting rather than less formal communications.

Was this a continuation of that effort?

A. Yes.

Q. Moving on to slide 31. Please summarize the contents of this slide as -- actually let me ask you, is this representative of OCD's response to that May 8th or 9th scope of work?

A. Yes. We pulled these out because reading them off of our OCD permitting is not as easy -- it's a note format.

My team was taxed with providing rationale for each individual well. I'm not going to go into the rationale in super detail today because my deputy director, Brandon Powell, will be going over that later on.

But OCD's conditions of approval were

aimed at complete delineation, and this was pulled from permitting some of the rationale that we obtained.

Q. So from your review leading up to this approval of the scope of work with conditions of approval and based on what Apache had submitted in the scope of work, if OCD were going to transition to approve a remediation plan that isolated or removed potential contamination, and again, based on what Apache had submitted, would OCD know where it was necessary to complete that remedial work?

A. I don't believe so, no.

Q. The wells listed here, I believe you referenced this, but these are simply the wells that were conditioned in the conditions of approval which Apache subsequently objected to?

A. Yes.

Q. And just to clarify for the Commission, you had indicated that the conditions are difficult to read on the OCD website. Is that right?

A. It's a different formatting. This was just easier to list them all.

Q. I'm trying to just clarify for everyone how the conditions are oriented. So as a result of

OCD's interest in documenting the next steps formally through permitting, the conditions of approval when they're entered, are those documented on the incident page or somewhere else?

A. They are documented on the incident page.

Q. Did that appear on the page in a particular field or how does that appear?

A. It does. It's an annotation to whatever approval that was given.

Q. So this is simply copying that information out and expanding it for the Commission's review?

A. Just for readability.

Q. All right. I would like to move on to slide 32. We're now in August. Please summarize the contents here for us.

A. When OCD proposed the additional wells, this was some excerpts from Apache's response in which they objected to the additional wells that we had indicated.

They did provide their rationale for some of them and did indicate that they were willing to add the additional two wells instead of the OCD requested wells.

Q. And upon review, did OCD feel that

response to that approval would provide important adequate delineation?

A. We did not.

Q. How did OCD respond to that?

A. We requested an additional meeting.

Q. I would like to move on to slide 33. Please summarize the contents here for the Commission.

A. Again, a brief summary of the additional meeting. Mr. Powell did go through the additional wells and provided the rationale for the placement of those wells.

Apache at that time did agree to a revised plan, that they would do revisions and resubmit to OCD.

Q. And did Apache ultimately submit a revised plan or scope of work?

A. They did.

Q. And is that represented on slide 34?

A. It is.

Q. Pleas summarize the content of slide 34 for the Commission.

A. They added the soil boring proposals. They increased from the five wells to an additional

two, which would have been seven total, less than half of what OCD had requested.

Q. And again, like the last one, did OCD feel that that response was adequate to fully delineate the site?

A. It did not.

Q. And this discussion was happening in September of 2004?

A. Yes.

Q. Did OCD have any ongoing concerns regarding the lapse of time during these discussions?

A. Yes.

Q. And how did OCD respond to the additional ground water delineation work plan?

A. At this point it had been approximately two and a half years since we originally started working on this project. So we did not feel that this was adequate.

Q. Moving on to slide 35. I think I jumped ahead of you with my question. Please summarize slide 35 for the Commission.

A. This is fairly self explanatory. This was directly from Apache's proposed additional wells.

The one circled on the map are the additional ones that they agreed to in their scope of work.

Q. Moving to slide 36. Please summarize OCD's review and response to the additional delineation work.

A. I won't go into a lot of detail because I was not on this conversation. But Brandon, our director, Brandon Powell, in communication with our legal counsel did not feel that this was a good faith effort and gave the option to comply with our conditions or let us know if we were going to hearing.

Q. And as far as your participation in the back and forth discussions, this was kind of the end point for that pending Apache's decision in response to our ultimatum, for lack of a better word?

A. Yes. My reviews were for more the technical capacity. This is when it expanded to our legal.

Q. We have moved through the slides. Just to reiterate, Ms. Romero, contents of these slides that we have summarized, this is excerpts and paraphrases from the other exhibit represented both in that -- that we have admitted and that Apache has admitted,

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correct?

A. Yes, paraphrased from the environmental bureau's perspective.

Q. So a couple of real high level questions to clarify over the presentation. Between 2019 when the first release was reported and July of 2022, was OCD aware of or did OCD identify any ground water impacts?

A. I believe the initial sampling results showed an increase in chloride, but at that time it had not proved high enough to fall under a ground water investigation. Probably post 2022, when we saw higher numbers that would lead us to that path.

Q. So prior to discussions and review of the sampling in 2022, the information available to OCD, did it provide a basis for which OCD would have required additional investigation?

A. Can you rephrase that.

Q. I'm trying to zero in on when OCD makes the decision to expand the investigation. So I'm wondering from -- go ahead.

A. From the original sampling of the original first two and then four wells, the increased chloride and the continuing increasing chloride

coupled with the increasing chloride from the windmill well led us into further investigation.

Q. So the initial sampling and remediation events, would that have warranted ongoing ground water monitoring with Apache?

A. Not necessarily. The soil excavation -- theoretically, the soil excavation was closed because of sampling done at that time.

MR. TREMAINE: I think these are all my questions on direct, Ms. Romero. Mr. Chair, the witness is available for cross-examination.

COMMISSIONER RAZATOS: Excellent. Thank you. Mr. Moellenberg. Please don't forget to turn on your mic.

MR. MOELLENBERG: Thank you for the reminder.

CROSS-EXAMINATION

BY MR. MULLENBERG:

Q. Thank you very much for your testimony today. I have just a few questions for you.

If you can turn to -- let me make sure that I got the right slide. It's slide 22 at the bottom. Do you have that in front of you? I think we could do this quickly without pulling it up on

the screen.

A. I believe so.

Q. There's a reference to an e-mail dated November 29, 2023, and it says received from legal counsel.

Do you know what legal counsel that was in particular? Do you know if that was the landowner's legal counsel?

A. I believe it was the landowner's legal counsel. I don't have that in front of me. It was not me who originally received this e-mail.

This was through at the time our acting director, Dylan Fuge, but I believe it was their counsel that reached out to him.

Q. And my next question related to a comment that you made, and I think it was regarding your testimony on slide 25.

And you said I believe at this point, and I think that we're in April of 2024, OCD did not have enough detail to make a decision. Could you clarify for us what kind of a decision OCD would have been considering at that time?

A. The decision being is this another release that needs to be removed to OCD, that OCD needs to

point out. Is this a ground water case that OCD needs to request official documentation on.

Really, not enough information to provide any direction or to follow our regulation.

Q. Thank you for that. Ms. Romero, slide number 30 refers to a follow-up meeting on May 16 of 2024.

And then my understanding is that subsequent to that the next communication was OCD transmitting its conditions of approval. Is that consistent with your recollection and understanding?

A. Yes.

Q. Is there any particular reason for the time frame between the May 16th meeting and the July 24th communication regarding the couple of months time frame there?

A. We needed significant research on the rationale for each individual placement.

Q. And then getting to the last slide, number 36, which discusses the time period after communications between Apache and the Division regarding the conditions of approval, I believe in one of his questions to you Mr. Tremaine referred to that as an ultimatum.

In your view, is that an accurate characterization?

A. No. In my view, I don't believe it was an accurate characterization. At this time personally we had been willing to communicate and work with Apache.

At that time a good faith effort, we were willing to discuss placement of wells to some extent. But as previously communicated, we were not willing to back off on the comprehensiveness of what we were looking for.

Q. And that would describe your disagreement with Mr. Tremaine's use of the word ultimatum?

A. I would not call that an ultimatum.

Q. Up until this point in time, during all of the back and forth between Apache and OCD, would you characterize the discussions as being cooperative?

A. For the most part, yes.

Q. And up until this point in time, can you point to any particular instance when Apache had not agreed to particular requests for investigation by the Division?

A. I feel that it was the Division requesting -- continually having to request more work.

Q. Is it fair to say during this entire time up again to this September of 2024 meeting that both Apache and the Division were trying to interpret and address a great deal of information that was being collected at the site?

A. We started with trickling information, and it did increase over time at OCD's request.

Q. Just a point as to your testimony regarding a transition from informal communications to recording information on the Division's website regarding particular incidents. And I believe that took place in around April or May of 2024.

Doesn't the Division post e-mail communications between the Division and an operator into the incident file on the OCD website?

A. At the time and probably to date we still can't confirm or we can't say yes, it is definitively related to the original incident.

So there was some question whether this should be considered a new incident or not. At this time we are uploading all of those emails for documentation purposes.

We have gotten those uploaded, but originally I think that was why things were

happening informally because we were not sure that it was related to the original incident.

MR. MOELLENBERG: Thank you. That is all the questions that I have, Ms. Romero. Thanks again for your testimony.

COMMISSIONER RAZATOS: Mr. Tremaine, was there anything that you wanted to redirect with?

REDIRECT EXAMINATION

BY MR. TREMAINE:

Q. Do you recall Mr. Moellenberg just asked you a question about why it took from May 16, 2024 until July of 2024 for OCD to issue the conditions of approval. Do you recall that question?

A. Yes.

Q. Is it typical practice for OCD and the environmental bureau in particular to define the terms of an extensive delineation for the operator?

A. No.

Q. So is it typical for OCD to provide such an extensive list of conditions or list of additional specific sampling points or wells or anything of that nature?

A. No. Typically the expectation is that the operator consult will provide that to us.

Q. In your opinion, had OCD repeatedly expressed the need for a significantly more comprehensive delineation plan to Apache over the previous meetings and discussions?

A. I feel that was communicated in every discussion.

MR. TREMAINE: No further questions.

COMMISSIONER RAZATOS: Thank you. Let's turn to the Commissioners. Commissioner Bloom, let's start with you.

COMMISSIONER BLOOM: No questions.

COMMISSIONER RAZATOS: Commissioner Ampomah.

CROSS-EXAMINATION

BY COMMISSIONER AMPOMAH:

Q. Thank you, Ms. Romero, for your testimony. I do have a couple of questions for you. The first one is on your slide 15.

You talked about there was a closure to the soil remediation. Now, my question is that is OCD's inspector inspected the site to make sure that the remediation plan and everything was followed before the closure was one that was permitted?

A. This was a very standard site or so we thought at that point. We don't inspect every site

that was -- closures are typically done via laboratory analysis, soil sampling results.

Q. So no?

A. No.

Q. Now, prior to the closure, was the lab results from the soil sampling, did they show that the chloride was in normal range that was acceptable to OCD?

A. Contaminated soils were excavated. There were some contamination left in place, hence the need for the liner. The liner utilized to protect chloride from washing further down, but it did meet closure criteria to close.

Q. It met the closure criteria to close?

A. Yes.

Q. Now, let me ask what is the responsibility of OCD with regard to what would help operators to identify the source of contamination?

A. I misunderstand. Can you repeat that.

Q. My question is what is the responsibility of OCD with regard to identifying the source of contamination?

A. OCD, unless it's a surface contamination OCD doesn't have the equipment to fully investigate

in a situation like this.

Q. So is it correct that OCD relies heavily on the operator for the source of the contamination?

A. Yes.

Q. Now, based on the testimony that we have gone through yesterday and today, one big question still hangs around that I really want your take on.

Is Apache responsible for full delineation and remediation even if it cannot be established that the contamination occurred as a result of the Apache known release that was reported to the OCD?

A. Apache is the only oil field, they are the only operator who has lines, wells in that particular vicinity.

So while it may not be a part of the original release, maybe it could be, we don't know. But if it is not, whatever else is out there is still Apache.

Q. So as of 2022 or as of let me say May 16, 2024, has OCD visited the remediation site?

A. Yes.

Q. So in your testimony you talk about OCD demonstrated that the proposed well was not

sufficient to provide complete delineation.

Can you provide more information on that?

A. I am not going to go into a super amount of detail because Mr. Powell's testimony will likely cover that significantly.

Q. Thank you. Now, on page 31 of your testimony, you say that drilling of all wells is required to commence within 90 days from this date of approval. That was the last statement before the table.

So is it the position of OCD that all the wells listed from 30 to 43 all need to be drilled at once immediately 90 days after the approval?

A. Typically mobilization, you get one drill rig out there, and they do them one after the other.

I really think we were just looking for a commitment, a deadline. Previously we had other deadlines in relation to these wells, and we've been flexible. But it is a way of insuring ongoing communication.

Q. So was OCD flexible with regard to the approach or once you have a rig on site you have to

drill all these wells or there is a flexibility on, let's say, state wise approach?

A. I don't believe we had that conversation, but I believe that would be better suited for Mr. Powell to answer.

Q. Now, let's say when OCD determined that there is a probable, let's say possible ground water contamination, that was way back in 2022, why did OCD not move into ground water remediation efforts?

A. It needs to be fully investigated before ground water remediation efforts. If we start remediation efforts, anything, a pump and treat, if we have an active release that is still actively contaminating, that is not going to do us any good. We really needed to determine where that was coming from before anything else could take place.

Q. So as of 2022 up to now, there has not been an established complete source of release, I guess. Is that a fair statement?

A. I do not have enough information to answer that, no.

Q. Do you have enough information to say whether there has been a full delineation of the

contamination on the site?
A. No.
Q. Now, on September 24, 2024, why did OCD feel that the additional seven wells that Apache proposed were not adequate?
A. Again, that would have to be answered by Mr. Powell.
Q. Let me ask anyway. How confident is OCD that the additional 14 wells that we attached a condition will fully eliminate the contamination?
A. Mr. Powell will go into details.
Q. Now, let me ask does the statewide approach -- it has been established through the hearing that there was a good coordination between OCD and Apache.
So does OCD support a statewide approach to continue to address this problem?
A. I believe so.
Q. So yesterday we went through the Apache C 4.1. I don't know if you want to refresh your memory on that.
A. Can somebody bring it up.
Q. So the green dots show what OCD is proposing. The blue balls is what Apache is

proposing. Have you reviewed this map?

A. To some extent.

Q. Do you believe Apache's proposed well locations and that of OCD proposed well locations are optimized to get the best results that OCD is looking for?

A. I think there are still some discrepancies with this map that leads to additional questions. Obviously, some of that was addressed yesterday and typos that they were indicating were a lot of errors.

I believe that some locations could be negotiated to some extent, but as I look at this, I still have a lot of questions when it comes down to it.

Q. Do you believe OCD and Apache can work together starting with this particular map to come to an optimized well location to help get the answers that OCD is looking for?

A. I do.

Q. Would you prefer that -- let's say would you prefer that option or is OCD asking the Commission to make that determination?

A. I don't think I am equipped to answer that

one. I think that would be a Brandon question.

Q. So based on your testimony, you talked about new additional information as a result of let's say an initiative by OCD.

So I want to ask you was there any initiative that was more or less started by Apache that you feel like they are fully committed to addressing this problem?

A. I do not feel that they put in the effort that we were looking for.

COMMISSIONER AMPOMAH: Thank you for your time.

COMMISSIONER RAZATOS: I have a couple of questions.

CROSS-EXAMINATION

BY MR. RAZATOS:

Q. As stated in the September of 2024 -- and forgive me. I believe I switched screens here, so bear with me.

Slide 34 that Apache proposed, the five wells plus the two additional, which is of what the OCD proposed. I just want to reiterate, and this may be a Mr. Powell question. I realize we've been asking you a lot of those today. I apologize for that.

Why do you feel that the Apache seven wells are not sufficient?

A. Mr. Powell will go into significant detail.

Q. I just want to make sure that we didn't cross anything there. There was an intonation yesterday that the OCD stopped communication.

Can you explain at your level when communication stopped? I think we got the impression that it stopped earlier in the year than what your time line is showing. Can you kind of tell us when communication stopped, in your opinion?

A. That final meeting that I attended, let's figure out what slide that was. It would have been late August.

Really, the conversation centered around we went through significant detail working on the map. Conversation centered around rationale. We really expressed what we were looking for and what we needed.

And when the the plan that came back it did not reflect any of that conversation. I think communication ceased.

Q. Another thing Mr. Moellenberg had asked

you. You had mentioned in your testimony that between May of 2024 through July of 2024, and I believe this is slide number, I want to say 31. It's where you stated about the wells and the rationale behind them.

You stated you needed significant rationale to be able to propose these wells. Why was there significant rationale needed?

A. Because typically this is not OCD's responsibility. They have a consultant. But in this circumstance we felt they needed a push.

Q. You said OCD had the consultant?

A. Apache had a consultant. OCD did not.

Q. It caught my attention as well. This was the phrase that was used, ultimatum. And you said you did not think it was an ultimatum.

What did you feel it was that was presented from the OCD to Apache?

A. Again, I feel we were willing to negotiate to some extent on locations, but we were looking for a comprehensive plan, a complete plan. Short of getting that, there was nothing left to review.

Q. And lastly in the questioning that Commissioner Ampomah had, you were talking about, I

believe it showed the relief, it was Apache C.41.

This last one with all of the wells showing on it, you stated that you felt that some locations could potentially be negotiated, but that you still have a lot of questions. So the OCD is willing to work at going through some of these wells, is that what you meant?

A. I believe so.

COMMISSIONER RAZATOS: I don't have any other questions for Ms. Romero. Mr. Moellenberg or Mr. Tremaine?

MR. TREMAINE: Nothing further, Mr. Chair.

COMMISSIONER RAZATOS: Mr. Tremaine?

MR. TREMAINE: Nothing.

COMMISSIONER RAZATOS: Thank you. We appreciate it. We've been at it for about an hour and 20 plus minutes.

If we could take a ten minute break, come back at 10:30 and pick up again.

(Recess)

COMMISSIONER RAZATOS: This is an adjudicatory hearing to contest the approval on Apache's scope of work for the additional investigation in Lee County, New Mexico. This is an evidentiary hearing.

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We just finished listening to the OCD's first witness. So Mr. Tremaine, I believe you have another witness, correct?

MR. TREMAINE: Yes, that is correct. If I may, the Division calls Mr. Brandon Powell.

Mr. Tremaine, your witness has been sworn in. Please proceed.

BRANDON POWELL,

called as a witness herein, having been first duly sworn, was examined upon oral interrogatories and testified as follows:

DIRECT EXAMINATION

BY MR. TREMAINE:

Q. Good morning. Please state your name for the record.

A. Brandon Powell.

Q. Mr. Powell, where do you work and what is your job title?

A. I work in the Oil Conservation Division's Aztec office. My job title is the Deputy Director.

Q. Are you testifying today on behalf of the Oil Conservation Division?

A. I am.

MR. TREMAINE: I would like to start by

directing your attention to exhibits, and I would like to share the screen for that, Mr. Chair.

BY MR. TREMAINE:

Q. Mr. Powell, did you prepare a curriculum vitae for submission in this hearing?

A. I did.

Q. Is that what is labeled as Exhibit 3 and displayed on the share screen right now?

A. It is.

Q. And this exhibit was prepared by you?

A. It was.

Q. Is it necessary to make any corrections or updates to this exhibit that you are aware of?

A. Not that I'm aware of.

Q. All right. Did you also prepare a visual aid presentation in preparation for this hearing?

A. I did.

Q. Is this what's labeled as Exhibit 4?

A. It is.

Q. And you prepared this exhibit?

A. I did.

Q. And is it true and accurate to the best of your knowledge?

A. It is.

MR. TREMAINE: At this time, Mr. Hearing Examiner, I would move admission of OCD Exhibit number 3 and OCD number 4.

MR. MOELLENBERG: No objections.

COMMISSIONER RAZATOS: They have been admitted. Thank you.

BY MR. TREMAINE:

Q. Mr. Powell, I would like to start off by running through your presentation slide by slide and providing a summary for the Commission here. So I'm going to OCD Exhibit 4-0041, slide 41 in the exhibit packet.

Could you please summarize the intended purpose of this visual aid presentation for the Commission?

A. This slide was set up as an overview of the site as a whole, how we got here, what the Division is doing. And I will go through it in more detail in kind of why we're here today.

So summarizing it, this presentation provides information received from Apache's history of investigations in the area. A couple of things I'll point out in that statement to date, a lot of the information we're depending on came from Apache,

what Apache has done.

We're not disputing the prior soil samples. I know that there's some corrections and some COCs, those kinds of things. Overall, we're looking at the information from Apache being correct and complete. And that is the information we used to make our decisions from.

We'll talk briefly basic rules and principals of Part 29, which is the spill rule. A couple of metrics to point out that the investigation release area currently is over four million square feet or approximately 94 acres. This area contains a contaminated area of approximately 2.6 million square feet or approximately 60 acres.

Both areas have the potential to grow until the site is fully delineated and abatement can start on the release. The chloride ground water limit is 250 milligrams per liter or background. I have here that the contaminated area is over 20 times that limit.

Based on the results that we received on the 8th of this month that is now, I believe, over 50 times that limit based on the current sampling results.

Apache's ground water flows and concentration contours drastically change after new wells are set showing additional corrections needed. The ground area continues to potentially degrade or spread while Apache delays action. Again, this is evident since we received the information in January how several wells have degraded over that amount of time.

The goal of the OCD is not to make any final determinations. The actions are to continue to expedite the delineation of the release, which is one of the very first steps that should be taken when classifying a release, a step Apache has taken years to perform so far and has not yet accomplished.

Going a little further in detail, there was a lot of discussion about delineation and what delineation means. I believe Apache is correct when they state the north, south, east and west borders are delineated. While not fully delineated, I think we're close to delineating the exterior borders of the release.

One of the keys to properly remediate something and properly take the next steps is to

identify interior boundaries as well, which includes finding your highest level of chloride, your highest level of impact. I have reviewed probably thousands either directly and indirectly of remediations. I have reviewed hundreds of ground water abatement plans over the years in the 18 years I've been with the OCD.

One of the things you have to delineate is where your concentrations are so then you could properly plan a remediation step. Without knowing where those concentrations are, it's hard to place recovery wells or remediation wells in efficient areas to effectively start that remediation.

On smaller ground water it is typically easier and quicker to find, but the sheer mass of this area makes that difficult. I'll dive into that more as we go through the rest of the presentation and why we selected the wells we did.

One other note. It's been mentioned a couple of times that the Division or that Apache had half of what OCD did as far as their conditions. One time line I want to point out and make sure we're all on the same page at, the overview is a good place to put that. The OCD added 14 wells as

conditions to the original or to the five that Apache had in May. So that is a total of 19 wells that the Division was expecting to be drilled.

When Apache came back with the September plan, they had a total of seven. So the Division was looking at 19, and Apache came back with seven. So that is well more than half. I'll let everybody else do the math. There's a substantial difference between 19 and seven. Talking more about the communication chain I think is important in the overview as well, why we got to where we did.

When OCD received the March of 2024 report, that report didn't propose any additional investigatory actions other than continued sampling in the area. If my memory serves me correctly, Apache stated they want to monitor for an additional year before they took additional actions.

And that discussion, OCD pressed that they wanted more comprehensive investigation. So Apache came back in April with four additional wells. There was a subsequent meeting to that. OCD again pressed that they wanted more comprehensive investigation. Apache came back with five wells. So only one additional well was added in May.

To help expedite the process, OCD took that May report, they added the additional 14 wells, the COAs, for a total of 19 wells that OCD was looking to drill in the area. Apache submitted the information that Rosa previously showed stating that they wanted to meet and see if we could find common ground.

So we met with Apache, and we again emphasized the fact that we wanted a more comprehensive plan. Apache assured us that they would go back, review OCD's conditions and come back with the more comprehensive plan. When they came back with the more comprehensive plan in September they went from five wells to seven wells. So they added two of the additional 14 wells OCD was looking for, which is not in my opinion a good faith effort to address the concerns that was shown by those additional 14 wells.

Each one of those wells had specific reasoning why OCD wanted those. So two wells in addition to what OCD had already reviewed I felt was not a good faith effort. And I felt that negotiations at that point had stalled.

Yes, there was an additional boring

around the original release point, around the junction box in addition to that. And that may be helpful with soil abatement. But to understand ground water and concentrations of the area, I felt that that was not a good faith effort at that point and that negotiations had stalled.

So it was under my decision to contact our legal counsel at that point and give Apache essentially three options. They had the option of either complying with the COAs, taking this to hearing or the Division would look at a notice of violation for failure to comply.

If you want to call that an ultimatum, I'm fine with that statement, but it gave those three options to comply. At the end of the day for this release site, Apache is the responsible party that OCD holds for this. The cleanup, the investigation it should not be OCDs's burden to go out and push and push and push. It should be Apache's burden to go out and perform this investigation.

And even though Apache in several meetings has been cooperative, has added wells where we have asked them to do, it has constantly been

OCD's push to get them in the room to have the discussions to add those wells, to add those things because original plans don't have those.

I say that, that is not from the release when it originally happened in 2019. That's when we started looking at the ground water concerns starting in 2022 moving forward.

And those conversations were very successful early on. It wasn't until that September date that really those negotiations stalled, and OCD felt time was of the essence. So instead of continuing to belabor setting additional meetings, again, two wells out of the 14 additional wells that OCD approved or had as COAs did Apache pick up.

So to expedite that process, that is why I gave the directive to legal staff to cancel further meetings. So I just wanted to clear that up upfront.

Q. Mr. Powell, you've given us an extensive summary to go through. I want to examine a few of these points with you before we move into the presentation, like at the summary level.

You had referenced concentration delineation. I believe you compared or contrasted

that to the next step of remediation. So can you clarify for the Commission what you mean by concentration delineation as the stage that we've been in and what, in your opinion, the next necessary step is going to be in response to this incident?

A. So concentration delineation, really what we're looking at at this point is understanding where the chlorides are and at what levels.

So you find the core of your mass contaminants from the core of your areas. Then you can start looking at what remediation looks like. Is it 20 recovery wells, is it two? You really start looking at what that looks like.

The well that Apache proposed in their plan, TMWs 27 was upgrade from the largest mass of chloride that we had seen. Would it affect 27 from an area of exposure? Possibly, but we don't know if 17 is the highest contamination point or if it's down another 200 feet or 400 feet. We just don't have that information yet.

So 27 may or may not effectively have an effect. Is there an ongoing release. You could be pumping out water as fast as it's being

contaminated. So understanding those particular aspects are key. Soil columns, that is one of our additional conditions we added to this. In each new monitor wells, we're asking for composite samples every 5 feet from the surface to the ground water to see if we encounter another chloride contaminated area in the soil that could be adding to this situation because several of the wells that were drilled to date did not have that level of investigation.

So we could have drilled through another core of contaminated soil and not known it. So understanding that information, that is going to be key to understanding how big an impact we're going to have. How we look at recovery wells, how many recovery wells we're looking for.

And those parameters are going to be key if Apache and others wants to model it. Models are based on key inputs. If you don't have key inputs you typically don't have models, and I am not a modeling expert, and I don't pretend to be, but I do know you have to have proper concentrations to be able to properly model.

if you would have modeled off of the

March report, that model would probably have been totally different than if you modeled it off of the January report because concentrations in key areas went up two to eight times in key wells.

So looking at chloride loads in an area, those models would have been vastly different on overall levels of impact in those areas. And something to point out when you're looking at understanding that, when you're talking chloride versus hydrocarbons because that was something that Apache testified to earlier, they stated that there would be more immediate concern if you were talking free phase product.

Well, chloride is not free phrase, but chloride contaminates an entire water column. It doesn't float on top, it contaminates an entire water column because it is a dissolved constituent. So you're not talking about contamination in the inches or feet of a water column, you're talking about a contaminated water column through the entire column of that.

So understanding those constituents, how far that is, where the highest levels are really key to understanding what those next steps are.

Q. Mr. Powell, I think one last question before we get into the next slides. What is the significance, in your opinion, of OCD specifically requiring TMW 17?

A. So OCD in the last events specifically required TMW 17. And to be honest, it was in an area that just didn't have prior information. And it was a larger area in between those two wells. So we required 17 to kind of close that gap, to see if it was homogeneous in between the two monitor wells that were mentioned in that COA or if there was something different.

I think Apache's witness did a really good job in providing that sometimes contaminants in ground water, you have a gradient, but you can have flows through that gradient in different areas. So 17 was to close a potential pathway or flow through an area just to see if there was something there. And lo and behold, we found the highest contaminated well to date.

Q. At the time that was required, did OCD expect in any way that you were going to get the levels or the hit that we got for chloride or TDS?

A. We did not.

Q. I would like to move into the next couple of areas of slides. I'm going to refer you to slides 42, 43, 44, 45, 46. And without getting into any legal determination, I'm going to ask you were these provided for the Commission and the parties' information as the relevant sections of statute and rule that OCD relies upon in consultation with counsel to respond to incidents and spills?

A. It is. Before we move along, I would like to pull up 43 if you don't mind as a general awareness.

Q. What is significant on slide 43?

A. 43 talks about one of the key aspects of Part 29, which is site assessment and characterization.

This is one of the platforms that OCD needs to be able to understand a release, the significance of the release, and the area of impact that a release has. So this is one of the things in Part 29 which is referred to as a spill rule that is a very significant portion of that rule as to being able to characterize the release as a whole.

And its full characterization, not just delineation, but characterizing the release as a

whole so you know what your remediation plan is at that point. So if you look at subsection C, the characterization should come in with a proposed remediation plan.

At this point in time, we don't have a full characterization of the site to even propose a remediation plan.

Q. So moving on from the authority into what we have labeled as a current state of monitoring wells. I'm going to direct you to slide 48, Mr. Powell.

And please tell the Commission why this slide is provided and briefly summarize the significance of the slide.

A. I'll do that and then I have a favor I'll ask. So this map was to give an overview of the site as a whole, where we're at today. And I apologize, the red lettering did not come out very readable when we created it into an exhibit, but it was to give the area as a whole what we're dealing with, where we're seeing high areas.

And it's essentially what Apache had shown in earlier exhibits. On this map, I'm going to note the aqua blue color starting at TMW 7.

That's the junction box that Apache referred to multiple times.

That is where the original release was that OCD became aware of in 2019 that Apache took actions on. So that release OCD seen at that time through Apache's presentations was a soil only release. The soil was investigated.

The soil was sampled. There was extensive work done by Apache in that area. And all that work was approved by OCD, and I will give credit to Apache for taking those actions because they followed all the procedures on a soil event that OCD required and are typical processes.

The one thing I will point out in monitor well seven, that is the area of the junction box that originally was discovered. There's several mentions that maybe there was historical releases in that same junction box over the years that we just didn't catch that may have contaminated ground water.

The size of the plume of chloride contamination we're looking at in this area is so large I would be shocked if during the original excavation in that area, if the chloride load was

from that area, that you would have enough infiltration over the years to push the chloride low enough where you would have not detected it in monitor well seven area during original excavation.

So that is one of the flags that we had especially when we keep seeing higher and higher numbers. If you had that much produced water flowing in that specific area over a large amount of time you would have thought the soil concentrations would have been so high that it would have required additional delineation and action in that area.

One of the other things that was discussed in excess was the high levels we're seeing in the January 8th report. Maybe it was due to rain and ground water flow because of that.

One of the things that has been determined in this area, if you look at the southernmost part of that aqua area is essentially a tight land area where all that water in that area flows to.

So that is where you have water infiltration at. That water infiltration is west of several of the key wells that increased, which includes TMW 14 on the easterly boundaries. It's

west of TMW 17. And the flow in that area theoretically should be flowing towards the windmill west, towards the southwest.

So that is where your water influx should be sitting. That is where you would have your water infiltration at from your rain events because I am not an expert, but I think you're probably looking at inches of rain in the southeast part of the state and not feet of rain.

So your infiltration, unless you get ahead to push contaminants is very minor for infiltration because the rain hits, it soaks in. It heats up and evaporates. So unless you get water accumulating in an area to cause a head to push contaminants down infiltration is less likely in the southeast part of the state just because they don't get the rainfall event.

That was something that was discussed in extense in the prior hearing in 2008 and 2013 when looking at levels regarding that rule making. That is why I am familiar generally with that concept.

Q. Mr. Powell, a couple of clarifying questions to bring this to a head. If I am understanding you correctly, OCD has a concern that

if there was a prior or a larger release from the original release site near TMW seven, OCD is not seeing an indication that there are ongoing or release in the form of chlorides.

There are the not sampling to indicate that there is chloride that is reaching the ground water, correct?

A. That's correct. It is my opinion that if there was chloride contamination to the extent we just seen in the January report, we should have seen it in that original excavation.

Q. Likewise, am I understanding that another flag for OCD is that surface water flows downhill, and we're not seeing an indication of concentration of contaminants in the wells nearest to what's known to OCD to be the lowest lying area related to the original release site?

A. So to clarify that statement, water flows downhill. And what we extrapolate from that, the water flows the natural topography water channels in area which has been determined to follow that path.

Once it sits, that's where you're going to get potentially mounding from influx of water. Those kinds of things, infiltration. We're not

seeing the mounding in the maps around TW-1, nine or ten or even five. And those are the areas closest to what has previously been determined as the collection area for rain events in that area.

We're seeing it further to the north and to the east around TMW 4, which is essentially upgrading it from that collection area.

Q. Thank you. Are there any other items of significance that we need to point out for the Commission on this?

A. Not on this map, but I would like to go to Apache's revised map because this map was intended to be current state at the site.

And with the January information that was submitted to us, this is no longer a current state map. So I would like to go to this map here on the screen.

Q. So for the record I'm going to direct you to page three of what is Apache Corporation's notice of errata. And this is page three labeled as Apache Exhibit C 4.1.

Mr. Powell, could you please summarize the significance of this slide that you had previously referenced?

A. So this slide kind of shows everything, the current state. I think Apache did a great job in trying to summarize a lot of information in a single slide. So I want to go through that.

There are several points I would like to make as we go through that. So bear with me. So I think this is a really important map that Apache provided. I want to start with some of the wells that we've seen increases on this map. The first well I'm going to bring up is TMW 17. That's the hottest well we've seen continuously to date.

At this sampling event, which was in October, the chloride levels at that well went from 5680 to 14,900. That is almost a tripling of chloride load in TMW 17. That is at a level not previously seen in this entire area.

So if that chloride load came from somewhere, it was an area that was not previously detected, showing that original area of investigation was insufficient in identifying your core contaminants.

Moving to TMW 14, which is to the east of 17, that water quality in chloride alone went from 1810 to 7,790. So again, several

multiplication factors have increased. Again, at 14 that is at a level not previously seen in this area. So again, if that level of contaminants was in the area previously, the investigation was not complete enough to identify a significant chloride plume moving through the area.

Moving down to TMW 15, which is in between those two, TMW 15 went from 2,160 to 7,160. The very same statements regarding that well.

Q. I would like to summarize on this point, Mr. Powell. You've heard the testimony throughout the rest of the hearing, correct?

A. Yes.

Q. And have you reviewed the materials and the prior reports submitted by Apache?

A. I have.

Q. Have you heard or read anything that explains the change in the sample results?

A. I have not.

Q. I believe you had referenced TMW 5. Please explain to the Commission the significance of the map at TMW 5.

A. I have two wells I would like to explain a little more, 5 and 18. So on five, and this is an

area getting close to the windmill.

So it went from 2,980 to 3,990. It's an increase of a thousand milligrams per liter, which is a lot lower than the other ones that I previously mentioned. But it's significant because you're getting closer to being up gradient from a windmill and going up by a factor of a thousand milligrams per liter, which is more up gradient than the current surface concern in the area.

And then TMW 18 is very significant as well because that went from 908 to 7,820 and why that is so significant is because that's your southernmost well that had a significant increase. And why that is significant is because, again, we didn't see those levels before any samplings, and it is downgraded from all of our potential sources.

Again, chlorided don't float on top of the water, they infiltrate an entire water column. So for it to get to 18 through those gradients, it would have had to move through 17 and 15 to get from the original release area as described by Apache to get to 18.

And you're talking several hundred feet of movement through an entire water column to get to

18. That is not typical in a ground water case to see that much movement in that short amount of time. And I understand that's a difference between March and October. So that is several months.

But when you're talking movement in hydrology, that is an extremely fast movement in a very short time. And that is one of the additional reasons why the OCD is concerned that there may be another source because movement from seven through 17 and through 18 in that short amount of time is highly unusual.

Q. Mr. Powell, is there anything else of significance to highlight for the Commission on this map before we move back to your presentation?

A. I would like to point out a couple more things. So the windmill, if you look at the chloride contouring that is drawn on the map, you see the windmill contouring that goes around 10, around one and to the windmill as far as a chloride level.

That is not super surprising because drawing water will create a vacuum effect that will pool concentrations in, but it's pulling from an area to the east of it.

That means it's pulling contaminants essentially towards it. We don't know how close that movement is. And as we know from 18 in this area, movement can happen rapidly. Again, 18 went from 908 to 7,820. So that movement in this area for some reason can happen extremely fast.

I know we talked about water quality with different witnesses going through, but I want to state I pulled averages on the windmill to see where it was trending. In 2019, an average of 245.5. In 2020, it averaged 280.5. 2021, 251. 2022, 233. All of those were indicative of background. 2023 it jumped to 359. 2024, it averaged 505.5. So it's almost now doubled what it originally started at.

The last sampling itself was 540. So in 2023, the trending started going in the wrong direction, and we don't know how fast that is going to change because look how fast the TMW 18 changed. So we need to get an idea of what is going on with the overall chloride load in the area, what the risks to the area are so we could look at what we're going to do for remediation.

I have one last thing I would like to

point out in the map. Look at the circle around TMW 17, the 10,000. That is a fairly large circle as far as contaminants over ten thousand. Again, we heard Apache's expert talk about yes, you have gradient, but you could have individual flow patterns. You could have those kinds of things. You could fit that entire circle between TMW 17 roughly following the gradient between TMW 16 and TMW 18.

Between TMW 19 and TMW 18 and between TMW 24 and TMW 23, you have hundreds of feet in between those two wells, and that is why the OCD required those wells. TMW 36, TMW 40 and TMW 41. So that follows similar to what we did with TMW 17 the flow gradient in the area down gradient of 17 in areas that could be missing again high concentrations of contamination.

There's two wells on this map that with Apache's addition may no longer be needed, and I would like to point those out because the other wells OCD evaluated in their evaluation before they added the conditions of approval.

So Apache added TMW 30 to this. So that essentially if you got 26 and 30 added there we

probably don't need 38 any longer or at least not at this time. If you scroll up a little to the top of the map, so originally OCD proposed TMW 31 in that area.

Apache has since come back and proposed TMW 29. So one of those wells is probably no longer needed. If you follow the gradient arrow in the area TMW 13 is your contaminated well that is close on the northern edge.

Theoretically 31 is more in the climb of the gradient than 29 is, but you don't need both of those wells. Only one of those wells are likely needed.

Q. Mr. Powell, if you would like to clarify for the record, I imagine this is obvious on the screen, but when you say TMW 30 as proposed by Apache, you're referring to this well in the southerly part of the state, but part of the map -- but that was actually labeled by OCD as TMW 39, and you're not referring to the TMW 30 proposed by OCD at the top of the map, is that correct?

A. That's correct.

Q. I want to make sure we're clear because we have overlapping numbering in the proposals for the

wells. I believe that Apache's witness Mr. Graham, has explained this.

A. The rest of the wells that OCD requested as COAs, OCD is still requesting to fill in those gaps in the investigation of where the most concentration chloride columns are at.

So we can then take the next step for remediation. Those wells are still potentially hundreds of feet from the closest well. So we're not talking small areas, and I will go into that more. We're talking large areas that this gap fills as far as what we need.

Q. Mr. Powell, I think I'm going to transition back to the presentation now. I would like to move to the overflow of Apache's ground water flows and direct you to OCD Exhibit 4-0050.

I think you had referenced some of this in your summary, but could you please point out for the Commission, what in your opinion in reviewing these reports is significant about these excerpts from Apache's reports?

A. Yes. And there's a couple of details to point out as well. So from a high level, these are the ground water flow maps in the area based on each

sampling event that Apache has taken. These come from Apache's reports that were taken as factual.

These are not maps that OCD created. These are maps that Apache provided. So I want to cail your attention on each of the maps specifically to TMW 4. So the map on the left, in 2022, the direction around four is not showing a high pressure area, and it is showing flow in the same gradient we're seeing today.

And that was based on the number of wells they had at that time. In the right map I just highlighted the area of the 2022 area, in the December of 2023 area in that yellow box. Again, no abnormalities shown around four. There's some shifts in gradient in specific areas. But again, we're just getting more gradient information in the area. And we are seeing slight shifts, but not major shifts in the area. If we go to the next slide I could further elaborate on that.

Q. Please do.

A. In this slide, I am re-showing the 2023 map and the gradient shown there that was just in the prior slide. I am comparing that to the March of 2024 map.

You see the area around four specifically, all of a sudden you have what is considered on a mounding effect where four instead of being part of the grading of the area, generally you're seeing four as a mound at this point or a high spot in the water, which is an abnormality from all the prior sampling events, which is highly significant.

The other thing to also note in the 2024 event that is kind of an abnormality is the gradient around the windmill is showing now kind of a southeast flow, but if you remember the chloride rings that were on Apache's map showing the chloride moves towards the windmill, that would be contrary to what they're showing in the March of 2024 map as far as gradient flow.

Q. Mr. Powell, we heard some testimony. You're saying mounding. We're on the same point. I heard from that testimony yesterday some testimony and some questions about mounding at TMW 4.

Do any of these maps give you any concern about mounding in that location?

A. So TMW 4 gives me a high concern for that area. It's up gradient to where you have ground

water influx. It didn't show in previous sampling events. All of a sudden it popped up in the March 2024 report as an abnormality.

When they went back and resampled in October of 2024, that mounding is still there. So it's not just an incorrect calculation around four. It's a continuation of mounding in that general area which gives me concern that there may be an active release in that area and that could also be part of why you're seeing the major jumps in chloride loading in TMW 17 and nearby wells.

Q. I am going to move on to the next slide, Mr. Powell. What is on slide 52?

A. Slide 52, again is that March of 2024 report on the flow paths. Again, I think that we hit it in the prior one. It's just a more blownup area shows the flow paths. To note, number 13 is contaminated. If you look from the flow path, I think we talked about that.

The prior witnesses talked about that extensively, so I won't dive into that. I think some of the up gradient wells that OCD and Apache proposed is going to vent that out more to see if that was caused from a cross gradient flow or from

potentially another source up gradient from that well.

Q. I'm going to go on to the chloride concentrations, the contours. We're moving on to slide 54.

Mr. Powell, what is depicted on this slide?

A. So the concentration contours from sampling events that Apache has taken in the area and how they have evolved over time.

So if you look at the concentration contour maps as we have gained more information as time has gone on, we have seen shifts in what those contour maps have done because we have learned more information with the area. There has been some increases, but up until this point they were not massive increases, they were slow progressions. The TMW-5 found a high contaminant level.

It was kind of at that point that it really spurred the thousand chloride, hey, there's something else going on potentially out there. TMW-6 being over that thousand. That was concerning. Some of those other levels prior to that as could be discussed were above potential

background, but they were nominally above background.

So we were taking some time to understand that. So as we hit five and six, those levels went up, which spurred us to look at it further.

Q. Mr. Powell, I'm going to direct you to slide 55. Is this the continuation of the same contours from the previous slide from a later date?

A. It is. This is as information has progressed. So you look at the left hand side. This is December of 2023. It's the chloride contour maps provided at that time. And then on the right is the March 14, 2024 chloride map from that sampling event.

As you could see, even in that time period, there was shifts in chloride contouring that Apache provided showing that there were changes potentially going on in the area that we didn't understand why it was changing or the chlorides were moving. Why they were contouring quite the way they were. You have wells increasing and decreasing.

So 14 was one of the wells that we pointed out previously that went over 7,000

chlorides. Well, in December it was 2500 and March of 2024, it dropped to 1810. So it was trending down before it rended back up.

So because of that in the area, there's movement of the chloride that we don't fully understand at this point. You look at 18, which was the key well I pointed out previously in December of 2023 it was 2000 and in 2024 it was 908. So it was trending at decreasing before. Then it trended at increasing.

Typically, when you have a chloride plume moving through water or contamination plume in general you're going to see the plumb move through, and it is going to go up until the plume moves all the way through. Then it will go down.

Unless you have multiple plumes moving through an area, multiple events sources moving through an area you shouldn't see a lot of variability. As the plume is moving through, you would see an increase until it moved through and then you would see a decrease unless you're on the outer edges of a plume. As the plumb goes in and out, you could potentially see some of those rise and fall, but again we're looking at extremely high

levels in some of these areas.

And if you are on the outskirts of a plume, that's concerning. 18 rising and falling like it has could be indicative we're on the outskirts of a major plume. Whether that is to the east or west I don't know. Or it could be that we're tracking multiple plumes through this area.

Q. Mr. Powell, there's been extensive testimony and questions about this concept of a chloride plume in the ground water.

If chlorides are getting into ground water, in your experience what are the basic mechanisms for those chlorides even getting to ground water in the first place?

A. So I have not seen anything proposed by Apache that this area has natural chloride concentrations. So the way the chloride would be getting to water would be coming from a source infiltrating down through the soils to get to the water or flowing from somewhere up gradient into the area.

Our reviews showed Apache's infrastructure was the only infrastructure in the area that would carry or produce water. If you have

natural gas, for instance, it's not going to carry or produce water.

If it is, it's going to be at minimal amounts. So initial reviews by OCD showed that Apache had all the infrastructure in this area that could contribute to produce water. So the pathways would be potentially be from a release unknown exactly where or at what time period because we haven't fully identified that area yet. And infiltrating into the soil to get into the ground water and then flowing into the ground water column.

Q. Is it possible that there is a pocket or pockets of chlorides in the soil that are leaching into the ground water, but there is not an additional ongoing release?

A. It's possible. The changes that we have seen in January 8 in the chloride levels are concerning. For that much additional chloride to leach into the ground, I don't think it's possible from a preexisting release that is not active unless we didn't previously identify the core of that plume.

If we didn't identify the core of that plume, then it could be the plume moving through.

If TMW 17 previously identified the core of that plume, then I don't see how you could have leached that much chloride into the water and then have it move to that extent from a prior release.

So in my opinion, it's one of those two actions that are probably at play is either you didn't identify it previously or you have something else adding to the area, which is a concern.

Q. On that point, Mr. Powell, if there's a core area of chloride contamination not previously identified in soil that just leached into the ground water through some events, what would be the necessary remediation step needed and ongoing steps to contain that contamination?

A. So if you got a chloride column in the soil that is leaching into the ground water table, you have to address that to stop that leaching because it will have infiltration over time, and that was one of the conditions we added to the conditions of approval was for all future monitoring wells to be drilled taking samples, composite samples every 5 feet to see if we drilled through something that is contaminated.

At this point there are several of these

wells, we drilled these test wells and it wasn't something that OCD asked for before, and it was not a concern previously. We thought we knew the source until we didn't.

We could have drilled TMW 4 or 5 or TMW 17 for that matter through a chloride column in the soil and we don't know it because that is not something that previously was being performed.

I think we are probably looking at a chloride column whether around the junction box or somewhere else that we didn't previously fully define because even if there's no additional chloride leaching into the ground water at the moment, the release size of the water had to be so massive that that soil is still contaminated because you didn't remediate around the junction box in an area large enough to remediate an area that would have caused this scale of contamination.

Q. Now, Mr. Powell, the other potential that we just discussed was an ongoing release. If there's an ongoing release causing this ground water contamination, what are the immediate response actions that are necessary to contain that release?

A. Shutting off the source. A lot of these

are in near pipelines. So that was one of the things in discussion with Apache, and it was a condition that we had previously.

I think we're going to work with Apache separate from this hearing to address with the new operator of the area to look at pressure testing those lines in the area just to insure that it's not a current ongoing release because that is a number one priority.

If it is an ongoing release, shutting off that source. So then we could mitigate what's already been released.

Q. So based on that the immediate response actions we've just discussed, regardless of the potential source and forget what Apache has submitted to this point, if OCD were to have to tell Apache where to go digging to isolate or remove contaminants or identify and prevent a source of further contamination, based on these maps could you tell Apache what they needed to do to prevent this ongoing ground water contamination?

A. No idea. I couldn't tell you anywhere inside of this exterior boundary where to go start digging. And at the same point even on the ground

water remediation I couldn't tell you where the best place to put a remediation well is at this point because I don't know where the largest source of contamination is.

We assume it is 17, but around 17 if you look at the scale of this map, the closest well is probably 300 feet away. So we don't know if 17 is the highest point in the area. We just know that it's the highest point that we've seen to date.

Q. Mr. Powell, is there anything else of significance on slide 55 to identify for the Commission?

A. No, I think we pretty well covered it.

Q. I want to move on to the OCD's conditions of approval. I am going to direct you to slide 57.

Mr. Powell, if you would please remind--you provided some of this in the summary, but please remind the Commission of when and why OCD issued the conditions of approval?

A. So going over the time frame again, just when and why, in March of 2024, we looked at the report that Apache provided.

It provided no additional investigatory actions other than continued sampling. That was a

concern. So we met with Apache and expressed that concern. In April they came back. They proposed four wells.

Again, OCD didn't feel that that was sufficient enough and expressed our concern in that meeting. And so in May, they increased it to five wells. Again, OCD felt that making positive traction was not what we were seeing based on the level of concern that OCD had, and OCD expressed in those meetings.

However, in May they gave the map. They gave the five wells. We agreed to Apache we would review those five wells and review the situation. And internally I directed the staff to review those and that if we had additional wells at that point we would add them as conditions of approval just to help expedite the process because between March and May were a couple of months if we increased by one or two wells each month, again, it's going to take several meetings, a lot of staff time to get to where we need.

So we took that report. We went back, and we reviewed it and then we added conditions and I expressly asked the staff to include the reasons

for each condition so we could make sure that Apache understood why we were adding those wells in the areas we were.

Q. Mr. Powell, when push comes to shove why did OCD determine that it was necessary to transition from asking for additional investigation, delineation of wells, what have you through less formal communication and moving into issuing conditions of approval in a formal manner through OCD permitting?

A. We just were not seeing the progress we were hoping to see, to be frank, for the area. We didn't go into May stating we wanted 14 additional wells. We didn't explain that to Apache because we didn't know exactly how many we were going to end up with, but in those prior meetings we did emphasize we wanted to see significant investigation in the area because of the levels we were seeing were concerning.

You're talking at that point we seen 5600 chlorides in TMW 17, which is multiple times above the regulatory guidelines. You have several hundred feet between it and the closest wells. So there's a big area in that area that was a potential

concern, and we didn't know what it looked like.

And we were not seeing the progress in those meetings that we were wanting to see as fast as we wanted to see it because it was a concern to see those kind of levels and ground water flows.

Again, I mentioned, we're not talking about free phase product of hydrocarbons. We're talking about a fully dissolved column of ground water in the area because of chlorides. So that could be tens of feet or hundreds of feet depending on the water column.

I believe in this area is the Ogwala (phonetic) formation. I'm not a geologist, but I believe I saw that in one of the reports, which is a major water source in that area, and we have a major impact at that point that we're monitoring.

Q. Was there a point in time when OCD became concerned that due to how things progressed to date, it may need to transition from a collaborative process to an enforcement posture?

A. So that point came after we issued the COAs and back and forth withApache. We tried to negotiate those COAs in good faith to again look at additional wells in the area to properly address our

concerns. And when they came back and just added two wells, so they went from five to seven. So again, with our COAs and those original five, we were at 19. They came back with seven.

I didn't feel that was a good faith effort at that point. So that is when it transitioned to a potential enforcement action or they had to comply with the COAs as previously provided.

Q. Mr. Powell, several of these slides in a row are continuations of conditions of approval. I want to ask generally, we have talked at length, both parties have talked about the map, particularly Apache's very useful CD dash 4.1.

Is there anything else we need to discuss of significance in the text of these conditions of approval?

A. So I think that we already addressed the changes that I think the division looks at with the additional Apache wells that would affect the conditions that OCD had for the conditions of the nearby wells in those areas.

So I would scroll down to slide 60, which starts the additional conditions and why those

were added. Condition two and up to date.

It is a map showing proposed monitor wells and the statement of work, that map I would say was accomplished with what Apache provided in this hearing. But it would have to be updated as we go forward. Quarterly monitoring collected to the present, summary table and lab analysis are sufficient.

I would mention in 2024, Apache took two samples or had two major sampling events in March and then in October. So that is not a quarterly sampling event even though that is what had been proposed. I understand there was a lot of negotiations in between there.

Some part of that probably got lost in those negotiations, but I do think that it's appropriate to point out in 2024 we did not have quarterly sampling events.

Q. Could I stop you before moving on and ask to clarify, based on the fourth quarter sampling results and your review of that information we have already discussed, some of the numbers jumped up quite a bit.

Do you believe that quarterly sampling

time frame is still appropriate?

A. I think it is. I think we probably need to communicate in a quicker manner between the parties. Once that sampling takes effect I think OCD getting some of the raw data may be helpful because of what we're seeing.

For example, the last sampling that we received January 8th, the chloride in the TDS was sampled, and the report was generated in October. If I remember correctly, looking at the page from Apache's exhibit, that report was generated by the lab on October 31.

So Apache had the raw data roughly around that period showing that those wells extremely increased in the area. And as testified to yesterday, there was no actions taken by Apache once that was discovered.

Q. I believe we had some discussion yesterday about likely delayed response due in part to the timing of the sampling between chlorides and TDS results and 3103 results.

So I want to ask you is there anything in the conditions of approval for the wells that we just discussed that require additional 3103

constituent monitoring?

A. So there is, and that kind of touches on condition four and five. One of the things that was detected, and I believe it was TMW 17 was cyanide above regulatory limits.

So that assessment needs to be done in the wells surrounding that to see if those are also contaminated to that point. We have seen some early barium hits in the windmill. Looking at that again, we believe that was a conversion error, and it wasn't above standards, but we have seen some exceedances in the 3103 based in the January sampling event.

It wasn't addressed in our prior conditions addressed here. So it would be something I would expert Apache and OCD to discuss in future sampling events going forward because of that constituent.

Q. Is there anything else of significance that needs to be pointed out in the remainder of the conditions approval on this slide?

A. I think we hit the samplings for composite samples as they drill. Drilling commencement within 90 days. I think we hit all of those in previous

slides.

Q. I am going to move on, and we're going to talk about some of the well locations. Some of this you addressed in your summary, Mr. Powell. So if we're going over material unnecessary, feel free to move us along.

I want to ask you on slide 62, we have seen this map before. What's the significance or importance of including this map again on this slide?

A. So we are kind of changing gears again from the conditions. We're going to look at the site holistically again.

Again, this was the most up to date map that I thought was out there when we created the slides. So it's just to bring the Commission's attention back to the area in general.

Q. Then moving on, we have two maps here on slide 63. Please explain why these were included for the Commission.

A. So these I actually took Apache's map. I took their scale and I tried to depict the areas that we were looking at as far as size.

These are general areas. I put them up

as squares because it's easiest because you could always cut off some small corners. But really on the left-hand side I took the outer northern limits and southeast and west limits and seen the wells that we had impact in to depict the beige color on the left.

So you're looking at an area 1950 feet tall by 1340 feet wide. The area on the right in the pink, that is on the outside of that is the additional area that we have investigated to date showing clean samples that we have seen to date, showing that the investigative level is slightly above the area we're at.

You notice the beige square on the bottom of the map does go to the edge of the pink area, showing that we do not have a buffer on the southernmost limits of the impact.

Q. So do you recall during earlier testimony I believe one of Apache's witnesses indicated they felt that the external, the perimeter of the quote, unquote, chloride plume had been delineated.

Do you recall something to that effect?

A. I do.

Q. Do you agree that the beige box here

represents that we likely have a handle on the exterior perimeter of the chloride plume in ground water on the north, east and west sites?

A. A couple of caveats. The east and west site, I would agree. We're not looking to continue exterior delineation there.

I think on the north side TMW 13 did have an elevated level. There is no current wells potentially directly up gradient from TMW 13. It's kind of on the northeast corner of the tan box for reference. So there's no wells directly upgrading it to that, so that potentially could move up.

And then the southern limit is not fully defined at this point because TMW 23, I believe, and it's hard to read this map, was over a thousand chlorides.

Q. So in terms of the strictly horizontal extent of the plume currently, there needs to be further delineation to the southern extent until we get to background.

Is that a fair characterization?

A. It is. And the wells, OCD, and I will hit that a little further. The wells OCD proposed west of 23 and I believe east of 23 is 25 down on the

bottom sufficient because 25 is one point several hundred feet away.

And you're talking about hundreds of feet to the east of 23 that could be contaminated and hundreds of feet west of 23 before you get to 24 that could be contaminated. So I don't know if 25 is going to detect that or not because it's one point several hundred feet away.

So that is why the OCD, and I will show shortly proposed additional wells in those areas.

Q. In that case, I will move to slide 64. Mr. Powell, what is represented on this slide?

A. So this slide was an attempt to provide the Commission with some scale. Sometimes when we're talking about sites that are out in the middle of nowhere it's hard to relate scale and understand what you're looking at. So on this as an overlay of where we're sitting today as a reference, in the bottom left hand corner you see the 1220 South St. Francis Drive address in that scale.

So that is the Wendell Chino building and its parking lot. As you could see, that is a small piece of the overall scale of what we're dealing with today. So if the Commission wants to

understand truly the area we're looking at it includes several state buildings, includes a soccer field. It goes by Trader Joe's. It's a massive area looking at that scale.

So that is what the left picture shows is that general scale for the Commission's understanding of what we're dealing with at this site. The right picture identifies where all the wells are currently located. So the blue wells are the blue points that are showing where existing wells that were testing clean in March were.

The red wells are wells that we're testing above chloride levels at that time. I did miss two wells on this. I missed the windmill well, which is directly below the three blue wells on the west side that are in a line. So it's about where your curser is right now where you moved it. So the windmill well is right there.

And I did miss TMW 27, which is the proposed well by Apache that is directly north of 17 slightly. And I did pick it up in further slides, so I will show that shortly just as far as where TMW 27 is.

But if you look at that scale as far as

what we're dealing with, downgrading of 17, we have half of the state building that is around 17. We've got the tax building south of that road. We have all of that parking lot in that state building and the Chino building that doesn't have a single well in it for scale.

So you have a massive area down gradient of your most contaminated well without a single well in it. So I think this just gives an overall understanding of the size of scale of the area we're looking at.

Q. Mr. Powell, how common is it that you have come across this in reviewing site characterization and delineations that have dealt with impacted area of this size?

A. I would say that it's extremely uncommon. Typically you're looking at areas the size of a well pad, slightly bigger than that as it moves.

You catch things fairly quickly. When it surfaces, so ground water impacts are more limited. So something of this size I would say is more uncommon.

Q. Have you heard or read anything in the materials leading up to this hearing that explained

the volume of produced water that would be necessary to be released to impact an area of this size?

A. I don't, and I don't know that we could calculate that today because we don't know the maximum levels.

We don't know the extent of the plumes where those contours really are because we're hundreds of feet in between there. I think it would be hard to identify. I would say that it's massive, but I don't know to what extent or even if it can be calculated today.

Q. Mr. Powell, I'm going to move on to the next slide, number 65. What is depicted on this slide?

A. Again, this is trying to show scale to the Commission. Ground water flows, I used the March ground water flows because that was the most up to date when I created this slide.

I overlaid that with the area in Santa Fe here where we are just for understanding what it looks like with the wells that are here today on the left hand map. So you look at TMW 17, it's flowing the ground water flow in the area goes

south to southwest and that is an impacted area.

You look at 18 again, it sticks to the southwest. So the contamination we're seeing at 18 today, the TMW, and I can't read it, the very bottom right in the middle would not be directly down gradient, it would be down and across.

And 18 is now a significant concern in the area. It includes -- and again, I'm staying on the left hand side. It includes the proposed wells except for TMW 27, as I previously mentioned where Apache proposed to put in wells in the general vicinity of these wells.

As you could see, there's nothing to the .west of 18 which is the ground water flow of the area. There is really nothing more proposed to the south of 17 along that gradient.

So there's some things to the east and that will help define that area, but there's still major gaps in that area. Again, 17 is your highest area. It is an area that OCD focused on extensively

On the right side with the yellow dot with the circle on it where OCD proposed additional wells, you could see there's down gradient of 17 with one actually at the bottom being down gradient

17 and 18.

There's a well east. That is 25, but I could be wrong. To see if that chloride contamination extends east of that well because, again, we have one point in the middle of hundreds of feet. The ones around 27 are trying to identify the extent of that plume and to see if we're dealing with the most concentrated areas at 17 or if we're at an outer edge of that concentrated area. Again, trying to identify the situation like came up in the January 8th permit where levels extremely rose in between sampling events. Is that something that was there all along or is that something new.

We don't know because we didn't have enough wells in between to show if there was previously chloride in the area that high or if this all new chloride impact.

Q. Mr. Powell, the last couple of exhibits have been overlays of multiple maps. So I want to ask for clarification for the Commission.

How and what did you use to prepare these slides?

A. So the gradient maps and the overall site map I pulled from Apache's information. The scale

of the maps of those maps I measured used Apache scale to get the dimensions in the boxes.

Then I applied the general dimensions of the boxes using Google Earth. And the scale on it to get the overview of where we're at today to get the general area to show the Commission what that really looks like.

Q. Mr. Powell, I'm going to go to slide 66, another set of overlaid maps. Please describe the contents of these slides for the Commission.

A. So the left hand slide is basically what we just went through. So I will skip that.

The right-hand slide is to go over where OCD picked additional wells. I apologize. I didn't number these. But just for general reference, those are the wells that OCD had, and the conditions again as previously discussed for Apache's TMW 30 well.

The proposed well just slightly north and a little east of that one, OCD feels that that may no longer be needed.

Q. May I interject. When you say these wells represented here, are you referring to the bull's eye red and yellow dots are the approvals?

A. That's correct.

Q. Where my curser is above TMW 30, is that the well you were referencing that may be able to be removed?

A. Correct.

Q. Or moved?

A. Or moved, that is correct. And I would say the same thing around TMW 29 to the east of 29, I would say.

Other than that, OCD still feels the rest of the wells are needed for the reasons given in the proposal. And those wells, for the most part there are one or two towards the outer edges are not to define the outer edges of delineation, it's to truly understand what we've got inside of that outer edge delineation.

You could see that there's four wells kind of directly around 17. To understand, are we on the edge of a plume on 17 or in the middle of it. It's kind of interesting. I picked this before the January 8th report came out, but you have a well between 14 and 15. That is going to help define where that contamination is there.

Again, 14 or 15 dramatically rose in between here. If I was to pick one today, I would

pick one north of 14 as well because of the impact levels we saw at 14. Maybe something between 14 and 31 because directly up gradient between 14 and 31 you're looking at an area 500 or 600 feet. So the wells I proposed here that we proposed other than the two wells mentioned, I still feel are needed in the area to properly investigate where the chloride columns are as of today.

Q. It's fair to say Mr. Powell that these wells are proposed in order to enable OCD to say with some degree of confidence where a line has to be shut off or where they have to dig or take some other remedial action?

A. I can't even state with confidence that we'll know that after drilling these wells. I think these are the wells that are needed for that next step, but as far as where to shut off the line, where to put in remediation wells, these should help with that process.

But there may be some more fine tuning there. That is something we could ask Apache and their consultant after drilling these wells and get those levels. Are we confident to go in and start remediation in the area or is there another gap.

I think up to this point that's the problem that there are more questions than we can answer where we can't start that remediation.

This is an attempt to get some information so maybe we could start down the remediation path and remove this site out of 29 into 30 so we could truly start looking at ground water remediation.

Q. Earlier you referenced that most site characterizations and delineations that you reviewed have been closer to the size of a well pad, and I think we have heard some testimony to the effect of Apache believes that the number of wells is abnormal and not reasonable in their opinion.

Would you agree that for an impacted area the size of a well pad 40 monitoring wells could potentially be excessive?

A. I would say yes. Are the wells we're proposing abnormal, absolutely. Is the area I think we're covering abnormal, absolutely. Are they excessive? I don't think so.

I think at the end of the day we're probably going to have more wells in the area. Hopefully they are all recovery wells, and we don't

have to continue investigation, and we could start down the remediation path.

But I think these wells are necessary. Could there be one or two wells in this area that don't provide significant information? That is possible. But even if you show the similar information, you give a definite area of knowing that is what it is in the area as far as quantitatively.

It's all going to be information to identify how big of an area you're looking at, and the attempt was to hopefully get enough information where we could move down the path because again, chlorides are moving through an entire water column as Apache -- and I hate to keep bringing it up. Apache mentioned if it was free phase hydrocarbons they mentioned they may be more attentive to it. Chlorides are dissolve phase. So you're contaminating an entire column as it moves through. I see this as being as much of an immediate concern as several feet of free phase hydrocarbons moving through the area.

Q. In your experience while the number of wells may be abnormal, is it OCD's position that

they are commensurate with the size of the impacted area?

A. It is. I would clarify that. If we would have known how big the area was originally, we could have probably redesigned this into a perfect world, and it would look different. But it has been continued ongoing process of trying to collect information, and I think that is what the Division is attempting to do here.

Q. I would like to now draw your attention to slide 67.

COMMISSIONER RAZATOS: Mr. Tremaine, may I interject. Is this a good transition spot maybe for a lunch break?

MR. TREMAINE: Actually, I was just on autopilot. We're done with the presentation. Slide 67 is a different exhibit. So I think we could come back and wrap up with a couple of questions and then make Mr. Powell available for cross-examination.

COMMISSIONER RAZATOS: Why don't we stop for lunch. Let's come back at 1:10.

(Recess)

COMMISSIONER RAZATOS: We're back on record for case 24912. Again, this is the application for

Apache Corporation for an adjudicatory hearing to contest the Division's conditions of approval on Apache Corporation's scope of work for additional investigation in Lee County, New Mexico. It is an evidentiary hearing.

Mr. Tremaine, we left off with you and your witness, Mr. Powell. So we'll let you continue from here.

MR. TREMAINE: Thank you, Mr. Chair.

BY MR. TREMAINE:

Q. Mr. Powell, we've gone extensively through your slide deck now, and I want to ask in summation if at this point in time and after everything you've heard during the course of this hearing leading up to this hearing, when you look at this matter from an enforcement and regulatory standpoint, do you still believe it is necessary that as a result of this hearing, there is an order issued with definitive investigation requirements with the certain deadlines?

A. I do.

MR. TREMAINE: Mr. Chair, I don't have any further questions, I would like to kind of wrap up the discussion of our rebuttal exhibits.

COMMISSIONER RAZATOS: Sure.

MR. TREMAINE: So you may have noticed we skipped OCD rebuttal Exhibit 8. We believe that the discussion yesterday with Apache's witnesses adequately addressed the questions and that presentation is not necessary. OCD rebuttal 8 is withdrawn.

We also as previously discussed are withdrawing OCD Rebuttal Exhibit 9. I want to make quite clear for the record that we've had what I think this morning are our good faith discussions about how to respond to the fourth quarter monitoring report that has some time sensitive things.

I won't represent that the parties are in full agreement on every detail of that, but it's my understanding we have a path forward over the next couple of weeks for immediate response actions. But we do not withdraw the entire content of Rebuttal Exhibit 9. What I mean by that is OCD still relies on and requests those original conditions of approval.

The additional ones are what is withdrawn, but all are contained within that same document. So

I want to clarify that. With that, it's my belief the appropriate next step is to, one, tender Mr. Powell for cross-examination and then proceed to close this matter. If there are any further and second order, if there is any further action necessary OCD would handle that separate and apart from this case.

COMMISSIONER RAZATOS: Okay. So just to make sure that we understand, you are going to be omitting Rebuttal number 8 and part of number 9. Is that what I understood, Mr. Tremaine?

MR. TREMAINE: Yes.

COMMISSIONER RAZATOS: Mr. Moellenberg, do you understand the same? We're having some technical issues here.

MR. MOELLENBERG: I think I understand what Mr. Tremaine is proposing, and we didn't have a chance to talk about it, but I think I get the gist of it.

I get the gist of his proposal. So we are ready to proceed with cross-examination unless there is anything before that.

COMMISSIONER RAZATOS: Mr. Tremaine, you had a few questions or you're done?

MR. TREMAINE: No. My questions are complete. Mr. Powell is available for cross-examination and questions from the Commission.

COMMISSIONER RAZATOS: Mr. Moellenberg.

MR. MOELLENBERG: Thank you, Mr. Chairman.

CROSS-EXAMINATION

BY MR. MOELLENBERG:

Q. Good afternoon. It is Mr. and not Dr.?

A. It is Mr.

Q. Mr. Powell, thank you very much for your testimony. I have a few questions for you.

I would first like to -- I don't know if we could pull this up. Turn to, I guess it's page 4-0043. It's your exhibit with a copy of 19.15.29.11.

A. I don't have that in front of me. If you want to pull it up.

Q. I think we can do that. I believe we have this page pulled up now. Are you able to see that, Mr. Powell?

A. I am.

Q. And this is the part of the rules that discuss the requirements for site assessment and

characterization, is that right?

A. That is correct.

Q. So turning your attention to the first paragraph here, would you agree with me that the lead into this section says, and I am now reading from sort of the middle.

I guess the second line under .11, the responsible party must assess soils both vertically and horizontally for potential environmental impacts?

A. Yes.

Q. And that is kind of the lead into this whole section, right?

A. Yes.

Q. And then the next part that you have on this exhibit is subsection A. It talks about characterization of the release.

Would you agree that is kind of the operative language here?

A. Yes.

Q. Again, this is the lead in to this is about soils. Then we get to subsection C, which says if the Division determines that more information is needed to understand the character of

the release, and it potential impacts on fresh water public health and the environment the Division may request the responsible party submit additional information.

Have I read that correctly?

A. Correct.

Q. So there is nothing else in the quoted language that you provided here that talks about water or ground water. Would you agree with me on that?

A. Yes. I think having an understanding how this works with 191530, it would be prudent.

Typically on a release you identify the release point, the soils of the release, their delineation both horizontally and vertically what impacts those as stated in the top environmental impact from any major or minor release containing liquids. From there what their impact is on fresh water.

I would state at this site we're kind of working backwards because we have the impact to fresh water, but we don't know where that soil impact is. So we're still performing outside characterization of the soils along with the water.

But we're working backwards because we have the impact to the water, but we don't know where the soil impact is at this point.

Q. And that statement makes sense to me and perhaps explains a little bit of the confusion here from at least a legal standard where we found, I guess, as you would say it some potential ground water impact, but we don't know where they're coming from. Would you agree with that?

A. That would be correct.

Q. And, of course, if you have a unknown source you have some challenges characterizing the source. Right?

A. Exactly, right.

Q. But at any rate I think that we're in agreement that section 19.15.29.11 doesn't really say much about ground water or water characterization?

A. No, because typically once a site is characterized as having ground water impact and assessed to have that, then it's transitioned over 30. At that point this transaction has not happened at this site because we did not finish the characterization under 11.

Q. So if we move ahead a couple of pages to 4-0045, and this part of your exhibit covers 19.15.29.12 NMACK, correct?

A. Correct.

Q. There's a sentence at the end here that says if the director determines that the release has caused water pollution in excess of the standards and requirements of 19.15.30 AC, the director may notify the responsible parties that an abatement plan may be required pursuant to 19.15.30 NMACK. Is that a correct reading of that sentence?

A. Yes.

Q. Is it fair to say that there's been no determination by the Division at this point, at least formally that the release has caused water pollution in excess of the standards and requirements of 19.15.30?

A. At this point I have not requested the director to do that because I don't feel we have the information to require an abatement program at this point based on the site characterizations we have.

So that is why I haven't requested to move it to 30 just because of that lack of information to be able to abate the site as it is

right now.

Q. Fair enough. Do you recall during your testimony this morning talking about some of the monitoring wells required under the Division's conditions of approval in the areas of the highest chloride concentrations?

A. Yes.

Q. And do I recall correctly that -- well, would it be fair to characterize your testimony in that regard as indicating that those wells are not needed to delineate the outer boundaries of the chloride plume?

A. That would be correct. That would be to investigate the concentrations internally of that.

Q. Right, and is it a fair characterization of your testimony that you feel the need for additional characterization in this area of the highest chloride concentrations to be needed to begin to assess how to move toward remediation?

A. That would be correct. I think to clarify, when you say the areas of the highest chloride concentrations, it would be the areas of the highest currently known chloride concentrations because they have changed even between March and

October sampling.

Those levels have changed dramatically. So we didn't know where the areas of highest chloride concentration were in the March report that we responded the conditions to.

Q. Fair enough. So basically you're limiting your answer to the data that is available. And I guess the highest chloride concentrations as shown by the current mapping?

A. Correct. We're trying to get enough information that we could possibly move to the abatement section of 30.

Q. But that concept of collecting information for potential future remediation is not really addressed in 19.15.29.11 NMACK, is it?

A. Generally yes, because it goes over the site characterizations both horizontally and vertically.

We still at this point, like I said, haven't found the source of the soil contamination. We continue to get more questions than we have answers for. So I would say holistically the site is not characterized enough to know where the highest chloride impacts are or where truly the

source of where those impacts came from.

Q. But I guess going back to our earlier discussion of 19.15.29.11, I think we agree that the responsible party must assess soils both vertically and horizontally for potential environmental impact, isn't that right?

A. That's correct. Can we go back to that slide?

Q. Certainly. That is 43.

A. So in C, I would point out the first sentence that if the Division determines more information is needed to understand the character of the release and its potential impact on fresh water, we're still determining that potential impact on fresh water.

And we don't know the soil source. So the site is still being characterized under 2911 because we don't know its potential impact on water at this point.

Q. Right, but if I understand kind of the overall discussion of the process here, one of your criticisms of Apache is that it hasn't, let's say, initiated additional investigation at least to the degree that the Division would like. Correct?

A. It was more a statement of fact of processes to -- you know, I wouldn't say it's a criticism overall of Apache, but it was a statement of occurrences to this point.

Q. But when we look at subsection C that you just mentioned, that sentence ends, and I'm talking about the first sentence of subsection C, the Division may request the responsible parties submit additional information, is that correct?

A. That's correct.

Q. Mr. Powell, do you recall your testimony regarding the Division requesting of Apache in around I believe November of 2023 to drill a monitoring well location -- I'm sorry, do you recall your testimony regarding the Division's request of Apache to drill a monitoring well in the location of what's currently identified as well TMW 17?

A. So I didn't testify to that. I believe Ms. Romero did, but I'm aware of that general statement.

Q. I thought I recalled you testified earlier, but that's fine.

A. If I did I don't remember. I'm aware of it. I would be happy to answer any questions

regarding it.

Q. I think the statement that I had in my notes that you made is that at that point in time the Division didn't have any particular reason to suspect that there might be very high chloride concentrations in that particular area.

Do you recall that?

A. I do. We didn't know what we were going to get out of 17. We had a sample result further east that had a chloride contamination and a sample further west and an extremely large area in between. And we were just closing the gap.

Q. Apache, in fact, did not object to a drilling of a well in that location and, in fact proceeded to install that well in the November of 2023 drilling campaign, is that correct?

A. That is correct. Apache complied with all requests for additional wells up until the COAs in May.

Q. Sorry for the delay, Mr. Powell. I'm looking through my notes. I know I have one other topic of questions, but I don't have a lot more. I am trying to avoid missing anything.

A. No worries, there's a lot to go over.

Q. I think a couple of areas. So I would like to turn to your slides beginning with 4-0064. If you can pull those up for me, please.

Just to explain this a little bit further, on this slide number 64 and the following two slides, 65 and 66, they show some significant buildings and development on this map, is that right?

A. That's correct. These are for scale, our understanding of scale. It's the Wendell Chino building that we are in today in the bottom left hand corner of that map and is identified as the 1220 South St. Francis Drive.

Q. Correct. I think you have explained this well to the Commission, but I want to make sure that it's clear for the record. I think that, in fact, you simply superimposed an image of the area around this building, probably Google Maps, around the site of EBDU 37, is that right?

A. Correct, for an understanding of scale.

Q. You don't mean to suggest in any way that there is any actual buildings or residential or commercial development of any type on this site, correct?

A. Correct.
Q. Do you know where the nearest location of any residential or commercial development might be with respect to this area around the EBDU number 37 well?
A. I did not. Our typical charge is looking at ground water quality as a whole. It's not to identify the residences.
Q. I would like to now turn to your Exhibit 4-0057, which is the conditions of approval. I want to clarify for the record how some of your testimony fits with this.
So in this document we have a series of, at least it begins with several parts of a condition one. I think that they're labeled condition 1A through 1-N. And each of those parts of condition 1 refers to a particular monitoring well location and number that OCD has prescribed. Right?
A. That is correct.
Q. I believe in your testimony you had identified two wells that in combination with the wells proposed by Apache could be eliminated in your view, is that right? Do you recall that?
A. That is correct.

Q. Is one of those wells identified on this document the conditions of approval the well identified in part B, that is 1-B of this list with the well identifier of TMW 31?

A. I would have to see a map because I don't have that in front of me.

Q. Let's pull the C 4.1 figure up. Mr. Powell, can you see this Exhibit C-4.1?

A. I can, and I made a note between 12 and 2. so that would be the well.

Q. So the well TMW 31 shown in the upper right of this Apache Exhibit C 4.1 is the same as would be referenced in condition 1-B of the conditions of approval?

A. That would be correct.

Q. The other one if I recall correctly from your testimony would be a well identified in the conditions of approval as TMW 38. And in particular, conditions of approval 1-I.

So let's see if we could find that on the map.

A. That would be what is marked on this map as TMW 38.

Q. So it would be the well with green TMW 38

in the lower right hand corner.

So based on what we have just talked about, Mr. Powell, based on your testimony part 1-B of the conditions of approval and part 1-I of the conditions of approval referring to wells TMW 31 and TMW 38 respectively could be dropped from the Commission's consideration of the Division's conditions of approval?

A. That would be correct.

Q. The other thing I would like to point out here for clarity, back to the conditions for approval document is at the end of that, in part 1-M and 1-N, would you agree there are duplicates, TMW 42 well identifiers?

A. Yes. That should be 42 and 43. I apologize.

Q. And I guess just to be clear what these are, under part one in the first TMW 42 indicates it's at some location between TMW 25 and 26.

Can we see if we could find that on the map?

A. I think that might be labeled on the map TMW 31 in quotation marks.

Q. Okay. So if we're going to include well

identifiers, I'm just thinking of the form of a Commission order depending on what the Commission decides to do. But the Commission should perhaps consider at least in the conditions of approval TMW 42 being the well identified on Apache's figure C-4.1 as that well in blue with an identifier TMW 31 with 42 in parentheses.

And then let's see if we can find the other one. The other one must be up to the north because it is indicated as being between TMW 13 and 22. That would be the one labeled TMW 43.

Q. And on this map, so perhaps Mr. Graham has clarified that for us, okay. Mr. Powell, you mentioned I believe with regard to the samplings conducted this past October of a lab report dated October 31. Do you recall that?

A. I do.

Q. Do you recall that there is actually a series of I believe four different lab reports reporting from the October sampling?

A. I do.

Q. Would you agree with me or we could pull it up that those dates of the lab reports run from October 30 to December 5?

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A. That sounds correct, yes. I think I specifically referred to the TDS and chloride sampling which is that lab report I was talking about I believe was generated on October 31st.

That is not in my exhibits. If you want to look at them further I believe it's in your Exhibit C.

Q. Thank you. I think you're correct.

MR. MOELLENBERG: Mr. Powell, thank you again for your testimony. That is all the questions I have.

COMMISSIONER RAZATOS: Mr. Tremaine, did you have any redirect?

MR. TREMAINE: No redirect, Mr. Chair. Mr. Powell is available for Commissioners.

COMMISSIONER RAZATOS: Excellent. I started with Commissioner Bloom last time. I will start with you, Commissioner Ampomah.

MR. AMPOMAH: I do have a couple of questions.

CROSS-EXAMINATION

BY DR. AMPOMAH:

Q. So the first question that I do have, if we could bring up the Apache Exhibit C 4.1.

Based on your testimony, I really

really do understand this map perfectly now. So if you look at the extent of our reach, we have TMW 21 still recording some elevated numbers. TMW-22, still. You do have B 289.

If you go to the other side, I am trying to look at the extent of boundaries. So TMW 12, 400. So as you go through it on the other side, probably on the west side you have TMW 3,183. And you have 66, 171. But as you go down, it gets up to TMW 19. It gets to 907 TMW 24.

So my question is do the wells proposed by OCD or Apache more or less address the extent of the boundary of the potential contamination?

A. The incident of the OCD wells is to try to address the extent of the contamination. Will they? I don't know, especially on the southern boundaries there are three wells extending down in that area.

We don't know what we're going to find at this point. There may need to be additional investigation down in that area as we find more. To the north, I think the wells north of TMW 13 will identify those. The eastern boundaries, the 284 on TMW 21, we believe that could be background levels at this point based on what we were seeing in the

windmill well.

One note in the windmill well in those westerly wells, those potentially could have been impacted by rain influx. So rain water would potentially be cleaner water than what would be naturally in that ground water zone just because it's picking up contaminants, that may be why the western edge is fresher than the eastern edge.

Q. So if you go down to TMW 19. So OCD is proposing TMW 40. Now, TMW 19 is right at the external boundary to the west.

So why not TMW 40 on the other side of TMW 19 to see if we could nail down the boundary?

A. The intent of TMW 40 was to see if there was a plume coming down below TMW 17 and to try to measure the extent of what that plume may be. But you are correct, TMW 19 being at 907, there may be something westerly as well that may be needed to fully delineate that.

Q. So you do have the TMW 18, and you've also proposed TMW 36. So I believe that TMW 34 or the 36 being combined with the 18 if you are prioritizing where to place the wells, I feel that 40 can probably move to the other side for us to really

nail down on the boundary, but I don't know if the 36 and then the 18 can address the 17 questions or not?

A. So a couple of things to look at when you're looking at 40 in relation to the wells you mentioned ground water flow direction is in a south, southwest flow.

Eighteen is directly south, actually offset a little to the east of 17. So the ground water flow from 17 depending on the plume and the underground characteristics could skirt the edge of 18.

And 18 as a reminder from the March sampling to the current sampling went from 900 to 7800. So we don't know if it's on the exterior boundaries of a plume or if it's actually in the center of a plume wherein the plume goes down through 40 and could end up being directly down gradient from 17.

Q. So you want to still keep the TMW 40 at the current location?

A. I believe it would be prudent to keep TMW 40 just to see where that flow because the distance between TMW 19 and TMW 18 I believe is roughly 600

feet. So it's quite a large area and so that would just close the gap between those two to understand what we're dealing with in that area.

Q. Based on your testimony, I want to confirm that OCD's position is that the seven wells that Apache proposed is just not enough?

A. Correct. And just for understanding, of those seven wells, five wells is what OCD also considered and then added 14 to.

So only two of Apache's wells were not considered in the original COAs. And those were the wells that OCD is going to draw Apache replaced, found an equivalent area for those wells.

So OCD with the five and the 14 additional was looking at 19 were Apache's resubmittal had seven.

Q. So also just to clarify, your testimony is that in your condition of approval 42 wells, only two wells, the one listed on 1-B and 1-I is the one that OCD is willing to drop?

A. That's correct. And I should caveat that. At the end of the day it's the Commission's decision if they want to take the rest. But OCD's preference would be to keep the others.

Q. Then you brought up another good point. So let me ask you the same question that I asked earlier.

So on this particular map, do you believe that -- let's say combining OCD well locations, proposed locations and that of Apache locations, do you believe that something else can be done to optimize to make it more effective or you believe OCD's location is more or less okay?

A. I think some of the other options that are out there are more difficult to use until you have proper input such as modeling and those kinds of things because the drastic change between the March sampling event and the sampling event that was reported in January, it would have been hard to use other methods to do that.

I think that there's some spot methods that can be used, but those are single points in time. As far as drilling down auguring, looking at soil samples, I think to understand what's going on in the ground water column, the additional wells are needed to assess what the ground water impact is.

And then by doing some investigation in the soil as those are placed you may inadvertently

find maybe where some other soil impacts are to start looking at that. There were some clay lenses. It could be that chloride traversed some of those clay lenses and maybe we could find that in the soil investigation during the creation of those wells.

Q. It appears that OCD did a lot of work to fully come up with the conditions of approval. Now, with the new information that is more or less not included in your condition of approval, let me ask is there anything that could have been different assuming you are right in the conditions of approval let's say from the latest data that you have?

A. I think with the latest data I don't know that I would add many other wells. I think it proved some of the concerns that OCD had that we don't fully understand the areas yet because of the drastic changes.

So it showed the concerns OCD had. I think the locations are still necessary. I took the Chair's concern between 17 and the windmill that we don't have a lateral definition there. I take your concern at TMW 19 that we don't have anything to the west at that point. But other than that, I don't know that I would change any of the others, but I

think that it did highlight the concern that OCD had was valid.

Q. So in the 19, 15, 29, 11C, should the Division request additional information, it must be done in writing to the responsible party 30 days from receipt of the current transition report or remediation plan.

What specific information the Division is requesting and the reasons why the additional information is needed. So from your condition of approval I see you provide some reasons, but were they discussed with Apache or is it detailed enough for a party to know for each of these wells that OCD is proposing, the reasons behind that?

A. I think in the prior meetings we had with Apache and those conditions combined, I believe Apache should have understood the reasons behind those conditions in meetings leading up to that.

We were pretty clear that we wanted a more robust or comprehensive investigation in the area to further understand it. And that paired with where we placed the wells and the statements in those conditions provided that reasoning.

Q. Aside from the condition one, do you have

any sense of Apache's contesting 2 to 8, are they contesting any of them?

A. The way I took it when they resubmitted in September and only added 2 wells, that other than 38 and the other well up above, they contested all of them. So of the 14, I took it as they contested 12 of the others.

Q. Now, condition number two.

A. I haven't heard where they contested any of those other conditions.

Q. So specifically one?

A. No.

Q. Is OCD open to statewide deployment of these wells or do you want them all drilled within 90 days?

A. The preference would be as all of them drilled within the single deployment so we could get information as quickly as possible.

Based on the January 8th sampling events, it's apparent that the ground water in the area is degrading quickly. We don't understand why it's degrading.

So the ask would be instead of doing a staged investigation that we would do this in one

deployment.

Q. So in the event that the Commission doesn't more or less agree to all, let's say the ones that OCD is proposing, what impact will it have as it relates to doing your job?

A. I think the impact would be depending on what well the Commission didn't agree on. It could delay action in a particular area. It would be up to the Commission to do it.

If a certain well was picked and the Commission said I don't think this one is needed at this time, we would lose that data point. And then if it's determined we need that data point at a later time it would delay getting that data point.

Q. Did Apache present let's say a written response on each of these wells that OCD is requesting the rebuttal on each of these wells individually?

A. I don't remember if their response in August included each well individually. I think it was more of a holistic reservation of appeal and disagreement with the conditions.

Q. So there's no record showing let's say, for example, why Apache would not agree to A-1, A-C,

1-D, all the way to the end?

A. It's my understanding that Apache found out the outer limits were delineated, and the anterior boundaries didn't need any further delineation is my understanding.

COMMISSIONER AMPOMAH: Thank you for your time.

COMMISSIONER RAZATOS: Commissioner Bloom.

COMMISSIONER BLOOM: Thank you, Mr. Chair, maybe a couple of questions here just so we're headed procedural matters that could in influence my questions for Mr. Powell.

Mr. Chair, have we given any thought to what we're looking at next? Are we going to ask the parties for oral closings or will they be coming back with written closings? Do we anticipate deliberating today?

I think these are all things we need to discuss, and I think we have seen perhaps through this hearing the sides have come to some understanding on certain aspects of OCD's requests. I am wondering if taking time having written closings and perhaps time for the sides to talk, if that would be helpful.

These are all things we want to hear from

both sides about. But I just want to check on this before we get too much further.

COMMISSIONER RAZATOS: It's a very good question. Our legal counsel for the OCD is absent today. He had a prior commitment. I think we will have to kind of put a little bit of a recess under the NMACK, under 19, 15, 4.

We have to continue to be able to deliberate. I want to make sure that we have our legal counsel with us when we're doing that. We could always ask for some closing statements if that is what you as commissioners want as well.

I was going to open the question up for you. We have to majority agree to be able to continue and make sure that the record is officially closed before we continue all of that. So I think at this point in time, Commissioner Bloom, you ask your questions that are pertinent to Mr. Powell. I think I gave you an idea of where we're thinking of going. But I think we should ask the question so we could at least finish with Mr. Powell and then we can proceed with the rest if that makes sense to you as well.

COMMISSIONER BLOOM: Very good. Thank you,

Mr. Chair. Just a few questions for you, Mr. Powell. Thank you for your testimony today.

CROSS-EXAMINATION

BY COMMISSIONER BLOOM:

Q. Mr. Powell, Mr. Moellenberg was exploring with you aspects of 19.15.29.11. And it seems to suggest that assessing water is not perhaps required or authorized here.

Perhaps monitoring wells can't be required in this section. I think you addressed that, but I wanted to ask you that specifically.

A. I think it is a fairly common practice with the Division when investigating a release, they start with 29, especially when you are looking at water starting with the initial investigation. Typically that happens through soil investigation and then moves into water investigatory wells. I remember calling them monitoring well, but, we are calling them investigatory wells. We're monitoring, but investigating the impact in the area.

It's common when looking at impact to an area under 29. I would agree that once we get past that initial investigation and we move on to more actual monitoring of overall status in an area and

looking at abatement that that needs to fall under 30. But I don't know that we are there at this point.

Q. Do you feel if the soil sampling doesn't get you the delineation characterization that you need that a logical next step of the requirement to get delineation or characterization would necessitate investigatory or monitoring wells?

A. I think looking at such a large area I think it's got to be twofold. I think you have to look at the soil and look at the monitor wells.

If we don't find the soil information with Apache's bore hole that they are proposing and the sampling of the monitor wells that we required, if we don't find a possible source in those I think we have to continue investigating the ground water and look at potential other investigatory pathways for the soil itself.

Q. We mentioned 1950, 30. I read it, but I don't work with it every day. How does that enter the picture here?

A. So 30 is how the Division applies to WQCC, water quality conditions and abatements and those kind of things.

So once you have a confirmed ground water case and you're looking at then moving on to abatement of that area of that contamination source, 30 walks you through that process.

Q. I'm sure Mr. Tremaine will address this in his closing, but we heard considerable testimony regarding the spill, the five year history, the recent increases in chloride and TDS levels.

We've heard statements from both sides that characterization delineation of the release are not -- the releases has not been characterized or delineated. It's not well understood. We've heard you say that you would be okay, and correct me if I'm wrong here, if the Apache suggested wells 29 and 30 would work for the OCD rather than the locations that you had.

I'm wondering what ruling is the OCD asking the Commissioner for after the discussion we had?

A. I think the ruling is to uphold the conditions of approval absent the two wells, 1-B and 1-I.

COMMISSIONER BLOOM: Thank you, Mr. Powell, no further questions.

COMMISSIONER RAZATOS: Thank you, Commissioner Bloom. I do have a few questions before we actually go through all of it.

CROSS-EXAMINATION

BY MR. RAZATOS:

Q. On number two under conditions continued you say current and up to date site map showing proposed monitoring wells in the scope of work, and the additional, I think you have a typo there. One says 13 and then you have the number 14 next to it. Still wants the 14 wells plus or minus the two that you discussed?

A. That is correct.

Q. So that should be 14.

A. For clarification, that is likely a typo in the conditions of approval that is online as well. I just transposed that into this.

Q. I just wanted to make sure. Thank you for you testimony, we appreciate it today.

You started off in your direct with Mr. Tremaine, that you mentioned that basically the majority of the external boundary is pretty much set. It's not the most perfect delineation, but pretty much know how far, of course. Commissioner

Ampomah said on the one side and the the west site needs more on that aspect.

Part of the reasons you're asking for all of the wells to be entered, you stated that we need to be able to see the chloride concentrations within the area and delineate that area so that we can have proper remediation.

Can you kind of explain that to us?

A. So understanding where your concentration loads are is part of the key of abatement when you look at the next step because you don't want to set remediation wells where they are going to be the least effective.

If you're updating it from your source and your ground water is going another way, you're fighting nature basically. So if you have a better understanding of where your concentrations are that next step of abatement and where you set those wells, so you are going with the natural flow in the area and you're going with the natural contours, and it makes it where that abatement can be more efficient.

COMMISSIONER RAZATOS: Ms. Catalanos, please put up C 4.1. Put it where the TMW 17 is in the

middle of the page.
BY COMMISSIONER RAZATOS:
Q. I will ask you the same questions I asked Mr. Graham, Apache's witness, as well. Apache is also saying that TMW 27 would be a place that is right just a little south or southeast of the TMW 4 would be a good place to be able to see what's going on not only around that mounding of TMW 4, but also what potentially is coming off of seven, which is above from the original and let us know what is going on with 17.

And they also proposed in that instance to put in a pump test there. Do you think that that would be something that would be logical to put up in that region?

A. So to perform a pump test, if the source is above you, it's not a bad thing to do a pump test in that area. It is going to show what the area responds to.

I think originally TMW 27 was going in and monitoring three to five years. And they didn't state that additional well would be put in place during that time. That is a long time just to do a pump test and monitor without doing any other

actions as far as abatement.

So if TMW 27 is used as a pump test to see the effect in the area, there is going to be a higher concentration of wells around that so you could see hydraulically how it responds. Some other areas don't have that concentration of wells. That is why I'm assuming they didn't pick another area because they couldn't monitor those outside wells as well. So it makes sense to do a pump test where you have monitoring points, but that wouldn't be the extent of any remediation points.

Q. I will also ask you as I asked Mr. Graham the emphasis was put when we first started the hearing yesterday that this Commission is tasked to protect the people and citizens of New Mexico and protect the land of the state of New Mexico.

As was stated with the numbers that were submitted with the October testing done by Apache TMW 17 kind of has skyrocketed. 14,900 is what it states. The windmill is slated as was brought out to water cattle.

Do you feel that a monitoring well needs to be between 17 and the windmill to see what potentially could be creeping over to that windmill?

A. I think I addressed that in my direct. To kind of readdress, I think that was a concern that the Chair brought, and I think it's a very valid concern especially with how quickly the water degraded in the other wells.

It was very alarming how quickly it degraded and if there was another well in the area it could identify a plume and two, it could be identified as a well even if it's not in the plume that could be monitored for risk heading that way.

COMMISSIONER RAZATOS: That was the last question I had for this witness. Any other questions, Mr. Tremaine or Mr. Moellenberg?

MR. TREMAINE: No followup from the OCD.

MR. MOELLENBERG: I have nothing further.

COMMISSIONER RAZATOS: Mr. Powell, thank you. I appreciate it. Mr. Tremaine, this was your last witness, correct?

MR. TREMAINE: This was. We are done.

COMMISSIONER RAZATOS: Okay. Mr. Moellenberg, you had mentioned there was the potential you may want to put individuals back up. Is that still something that you wanted for rebuttal?

MR. MOELLENBERG: Thank you, Mr. Chair. We

discussed that at lunch. And I think that we are complete in terms of the evidentiary record here.

I don't think we have any further testimony to present.

COMMISSIONER RAZATOS: Again, Mr. Tremaine, for the record, are you complete with what you want to present?

MR. TREMAINE: Correct.

MR. MOELLENBERG: I think at this point -- do you have a question, Commissioner?

COMMISSIONER AMPOMAH: I want to ask if Apache can respond to the question that I posed to Mr. Powell, that if there is a written record rebutting on the wells, that OCD is proposing in the condition of approval, if there is any information that could be provided to the commissioner or if not, that is okay too.

MR. MOELLENBERG: Mr. Chair, I guess I would submit that the testimony yesterday primarily of Mr. Graham intended to cover that and address those particular issues and add Apache's view on the additional wells.

So I think that we're complete on that. The correspondence in the record from last summer also

provides some additional information on that. I would suggest that you focus on Mr. Graham's testimony.

Did you have any other questions, Commissioner Bloom?

COMMISSIONER BLOOM: No further questions.

COMMISSIONER RAZATOS: So I think at this point what we do is basically close the record for the evidentiary part of it as was brought out earlier, then how do we proceed.

I stated without our legal counsel here today I think that we do need to do a continuance. I did not want to do a continuance. That will take a month. This is maybe a week or two maximum to get schedules together so that we can deliberate and go over the information with our counsel and then be able to provide an order because in the end that is what's requested, right, to have an order for the parties to be able to proceed. So as I stated, I would like to state that we put in a motion for continuance under 1915.1.

Commissioner Bloom and Commissioner Ampomah, you both agree then we set up a date for within a week or two where we can be able to meet. Now, of

course, the question was do we get some kind of closing statement from both parties.

I'll throw it out to Apache and to the OCD. Would you all be able to provide a closing statement in a relatively short period of time?

MR. MOELLENBERG: Mr. Chair, from my standpoint yes. I think it would be useful, and we'd appreciate the opportunity to submit a closing statement. I would further suggest that the parties be allowed to present suggested forms of orders. I won't rule out the possibility that we might even be able to present you an agreed form of order.

I can't obviously guarantee that would happen and I haven't discussed that with Mr. Tremaine, but you never know. Sometimes that helps everyone out particularly given that we have got some new information that I think both parties are still considering.

Since the conditions of approval were entered, we have talked about doing some additional things. And I think from Apache's perspective, we would appreciate the opportunity to see if we could work out at least as much as we can work out and potentially avoid your need to sort through lists of

20 or so different wells. There's a lot of technical aspects of this.

From my perspective, I would like to make your job as easy for you as we possibly can. So bottom line is yes, I would appreciate the opportunity for closing statements. I'd appreciate the opportunity for the parties to present either their own suggested forms of order for you to consider which again the idea being help you sort out some of the details and if we can agree on one, all the better.

COMMISSIONER RAZATOS: Mr. Tremaine.

MR. TREMAINE: I haven't thought about what I would suggest. Procedurally I haven't thought that quite through, but if there's an opportunity to submit a joint form of order, which I think we'll be able to determine if possible pretty quickly early next week I suspect. Then it may be possible to submit that in lieu of closing.

If there is a stipulation -- I don't think we need to prepare closings. My only hesitation with taking this to a short deadline for written closing is that the finding of fact order with respect to a two day record and thousands of records could be an

onerous task for all of the parties.

I respectfully suggest we give it a week or two deadline and like a page limit. Something like that. So we are working with summary arguments and appropriate references because we could quite easily go overboard there and take up a lot of time. So I think in terms of doing a verbal closing or written closing I'll serve at the pleasure of the Commission.

Commissioner Ampomah, you had a question?

COMMISSIONER AMPOMAH: No, I didn't have a question. I have a statement. I support the statement from Apache. If they would work together that would be awesome.

COMMISSIONER RAZATOS: Commissioner Bloom, any thoughts from you?

COMMISSIONER BLOOM: Thank you, Mr. Chair. No, this seems like a very pragmatic type resolution. The sides can meet if they can come to us with a joint order. If not, then separate written closing statements would be very helpful.

Mr. Tremaine mentioned a page limit. We have certainly done that in the past. I don't remember what we limited them to. It might have

been ten r on 15 pages. Correct me if I'm wrong. I think this looks like a good idea for a path forward.

COMMISSIONER RAZATOS: I actually was also thinking a page limit if a consensus could not be reached. Mr. Tremaine, since you mentioned I'm going to ask you what were you thinking for a page limit?

MR. TREMAINE: Ten.

COMMISSIONER RAZATOS: Mr. Moellenberg, is that something doable?

MR. MOELLENBERG: I think so. I kind of had the same thing in mind, and Mr. Tremaine mentioned findings of fact and conclusions of law.

I hadn't really thought about that. I was thinking more of a wrap up closing and proposed again possibly a stipulated form of order potentially a couple of separate ones if we're going to get this to findings and conclusions, that raises the specter of a longer time period and longer document.

I can't say I fully considered whether those are necessary or not. But at the outset of this discussion I was not thinking that was particularly necessary.

COMMISSIONER RAZATOS: Mr. Tremaine, I want to give you a chance to response.

MR. TREMAINE: I'm happy to hear that. We've kind of go in a lot of different directions with some of these. And those can get quite long. I was worried about this overlapping with some other filing and cases we're working on and needing to submit a 50 page document.

So I think wrap it up with closing argument ten pages in about two weeks. If we can't in advance stipulate to a joint form of order that would be great.

COMMISSIONER RAZATOS: I think we're all on the same page on this one. I do realize that for state government next week it is a short week because of the holiday on Monday. So that may need to expand by plus or minus a day.

So if I understand, both parties if we took it out one week to be able to kind of get something, is that doable so we could deliberate on the second week or do you need two solid weeks to be able to get your paperwork together?

So if we do it one week from today, today is the 17th of January. It would take us to the 24th.

You guys would be able to submit it by the 24th or do you need through the 31st? Mr. Moellenberg?

MR. MOELLENBERG: Mr. Chair, I think we could submit something by next Friday. I don't know that we could get to -- I think that short a time frame reduces the likelihood of having enough time to try to get to a stipulated form of order.

So from my perspective there would be an advantage for a longer time frame to try to do that.

COMMISSIONER RAZATOS: Would the 31st suffice for that?

MR. MOELLENBERG: I think the 31st would give us a fair chance of getting to that. You never know how folks' schedules are. We're talking about a lot of people here. I think that there's a fair chance if we can't get to something like that by the 31st.

COMMISSIONER RAZATOS: You'll let the Commission know, Mr. Tremaine, that the 31st is agreeable with you as well?

MR. TREMAINE: The 24th is the time given staff schedules.

COMMISSIONER RAZATOS: That's why I offered both dates. So let's get your closing statements and/or stipulated orders by the 31st to the

Commission and then Commissioner Bloom and Commissioner Ampomah and myself and Mr. Rubin, we could do the deliberations and then get an order out to the parties.

Commissioner Bloom, are you available that first week of February?

COMMISSIONER BLOOM: Yes, I may have more availability if I can deliberate virtually. I have some availability on the 3rd and the 6th in Santa Fe. And the following week, the 12th and the 15th or so.

COMMISSIONER AMPOMAH: I teach on Thursday. So the third would work and if I can do it virtually I'm more flexible.

COMMISSIONER RAZATOS: I'm not sure about the virtual nature. There's certain aspects of the Open Meetings Act that we do have to maintain. I will run that by Mr. Rubin as well, but right now I think the 3rd would be something that would work for all three of us if that is okay. I will start with that.

COMMISSIONER RAZATOS: We'll try for the 3rd so we could get an answer as fast as possible. And OCD will be able to in the interim work in the

background and come to a resolution as well, which makes it easier for everybody at that point. Thank you for this particular evidentiary hearing.

MR. MOELLENBERG: Thank you, Mr. Chair.

MR. TREMAINE: Thank you, Mr. Chair.

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John C. Grams, P.G.

SENIOR GEOLOGIST

PROFESSIONAL SUMMARY

Mr. Grams has over 35 years' experience working in the oil & gas industry and environmental consulting. Areas of expertise include soil & ground water remediation, operational compliance, permitting, emergency response, emergency planning & drills, and oil & gas facility operations. John helps clients by leveraging his broad background in industry and consulting to understand and frame solutions to environment related business problems. He is skilled at listening to a client's challenges, then designing and implementing a solution to help the client achieve their objectives.

PROJECT EXPERIENCE

REMEDIATION

Expert Testimony
Oil & Gas Site Investigation and Remediation

Provided expert testimony on behalf of an independent oil & gas producer in a case hearing in front of the Oil Conservation Commission of the New Mexico Oil & Gas Conservation Division. The case involved technical issues related to a groundwater investigation at a site where a release of produced water had occurred. Written and oral testimony was provided as an expert in geology and hydrogeology. Project ongoing.

Expert Testimony
Plugged and Abandoned Wells

Provide expert report on project investigating the status and potential environmental impacts related to plugged and abandoned oil wells in the Permian Basin of West Texas. Also coordinated the field investigation and oversight work on numerous well locations involved in the dispute. 2023-2025.

Expert Testimony
Oil & Gas Site Investigation and Remediation

Provide expert report on projected environmental costs at former oil & gas wells, injection wells, and related assets at locations in Southeastern Eastern New Mexico. 2025.

Project Director
Oil & Gas Site Investigation and Remediation

Provide senior review, direction, and project QA/QC on over 100 projects involving the release of crude oil and/or produced water at oil & gas production facilities in Texas and New Mexico. Clients include major oil companies and smaller independent producers. Ongoing.

Project Manager
Water Well Investigation | Railroad Commission of Texas

Project Manager for investigation into source(s) of brine observed in former irrigation well in Pecos County, Texas. Project ongoing. 2025

Project Manager

Chloride Groundwater Investigation | Independent Oil & Gas Producer

Coordinate field investigation, data analysis, and reporting for a project involving a release of produced water in New Mexico which impacted a drinking water aquifer. Ongoing

Technical Expert

Chloride Groundwater Investigation | Independent Oil & Gas Producer

Prepare technical evaluation of brine upwelling in karst terrain in Eddy County, New Mexico. 2026.

EDUCATION

Master of Science,
Geology/Geochemistry,
Stony Brook University

Bachelor of Science,
Geology,
University of Minnesota Duluth

CERTIFICATIONS

Registered Professional Geologist:
Texas #15324
Minnesota #30747

40-Hour HAZWOPER

ICS 100, 200, 300, 700, Planning Section Chief Training

AFFILIATIONS

API, ILTA, AIPG

WORK HISTORY

Terracon Consultants, Inc.,
Environmental Dept. Manager
2022 - Present

GHD
Business Group Lead – Emergency Preparedness & Response
2021-2022

Wood Group/Foster Wheeler/Amec
Principal Consultant & Midstream Segment Lead
2014-2020

Antea Group
General Manager, Project Manager, Hydrogeologist
1999 – 2014 and 1988-1992.

BP Amoco
Environmental Coordinator
Terminal Manager
Business Analyst
1992 - 1999

Project Manager

Chloride Groundwater Investigation | Railroad Commission of Texas

Coordinate field investigation, data analysis, and reporting for a project focused on identifying the source of groundwater contamination at a residential property build on and around historical oil & gas exploration properties in Texas. Ongoing.

Project Manager
Spring Valley Terminal | BP/Amoco

Project Manager for investigation and corrective action at a bulk terminal subject to state consent order. Challenges of the project resulted from gasoline and diesel fuel impacts to a fractured limestone aquifer with complicated hydrogeology, a strong downward vertical component of flow, and the existence of high permeability pathways for horizontal migration at depth. Free phase product was present at depths greater than 250' at the source of the contamination, while MTBE had migrated to over 1 mile from site. Several potable wells were impacted by contaminants and required replacement. As Project Manager, Mr. Grams prepared numerous communications with the state, prepared community outreach newsletters, coordinated client communications, facilitated meetings, and prepared annual budgets and lifecycle spending forecasts. Field work included installation of multi-level sampling wells (Westbay and FLUTe systems), mapping of surficial geology, completing a sodium bromide tracer study, redesign of the terminal's surface water management system, soil excavation, and installation and operation of remediation systems at two distinct areas of the terminal.

Project Manager
Superior Terminal | BP/Amoco

Project Manager for investigation and corrective action at bulk distribution terminal. Challenges of the project included extensive history of operations going back to the early 1900's, history of rail car loading/unloading and rail car maintenance facility, low permeability clay with interbedded sands, and proximity to Lake Superior. Free phase hydrocarbons were present over an area of approximately 20 acres, with observed hydrocarbon up to 12' thick in wells. Mr. Grams prepared client and regulatory communications, community outreach letters, budgets, and lifecycle spending forecasts. Work at the site included decommissioning unused pipelines, pipe manifolds, and process tanks, soil excavation, passive soil venting, vacuum assisted product recovery, and dual phase recovery.

Project Manager / Hydrogeologist
Underground Storage Tank Projects

Planned and executed all phases of environmental field work including surface sediment sampling, soil vapor investigations, soil borings, monitoring wells, geoprobe, potable supply wells, vapor investigations in buildings and utilities, and various field analytical techniques. Designed, conducted, and analyzed results from draw down tests in monitoring wells, pumping tests in recovery wells, and dewatering activities during excavation projects. Prepared conceptual design for soil and ground water remediation systems, including soil vapor extraction, dual phase liquid recovery, air sparging, and excavations and worked with engineers on final design and system construction.

Project Manager

Liability Estimation and Risk Transfer

Coordinated due diligence activities, completed lifecycle cost models, and negotiated pricing with insurers and clients for two environmental risk transfer projects involving hundreds of retail service stations. One portfolio was in the Eastern U.S. and the other was in Central U.S.

Project Manager
Environmental Business Manager | BP

Three-year assignment working as an outsourced Environmental Business Manager with legal delegation of authority to manage environmental remediation projects on behalf of BP. Responsible for a portfolio of 400+ retail and terminal facilities over a 15-state area working with BP's legal department prepared annual liability estimate used to set reserves, managed annual budgeting and reporting, and coordinated environmental work done by other consultants.

EMERGENCY PLANNING AND RESPONSE

Planning Section Chief
Gasoline Release | Ford Motor Company

Served as planning section chief within a Unified Command structure following a gasoline release that resulted in evacuation of 500 residential properties, a number of businesses, and shutdown of a Ford auto manufacturing plant. Responsible for coordinating incident information, facilitating daily briefing schedule, and preparation of daily incident action plans.

Project Director
Refined Product Release | ExxonMobil PL

Project director for an emergency response to a pipeline release in Northeast Houston. GHD provided air monitoring services in the work area and surrounding community on 24/7 basis for three weeks with daily reporting to support regulatory communications.

Project Director
Refined Product Release | Buckeye Pipeline

Project director and client account manager for an emergency response to a pipeline release in Eastern Wisconsin that threatened the aquifer for a community that relied upon private water supply wells. Challenging elements to the response included requirements to sample over 300 residential wells, repeat sampling with requirement to make data available to the public within 48 hours, fractured rock groundwater system, and intense public scrutiny of the incident.

Project Manager
Tabletop Spill Drills | Buckeye | Illinois

Completed the design, completion and documentation for tabletop exercises at pipeline terminals in Illinois. Developed the spill scenarios, drill manual and participants guide, facilitated the drills, and prepared documentation following completion of the drills.

Incident Commander
Jamestown Terminal | BP Amoco | N.D.

Served as Incident Commander for the oil spill response team at a refined products terminal in North Dakota. Supervised required OPA90 compliance activities such as employee training, tabletop drills, and equipment deployment drills.

Project Manager
Facility Response Plans | Amoco Oil Co. Upper Midwest Terminal Operations

Mr. Grams had compliance responsibility for 10 petroleum bulk terminals during the initial rollout of the Oil Pollution Act of 1990. In this capacity he prepared Facility Response Plans (FRP) for the 10 facilities, including EPA, DOT and Coast Guard jurisdictional locations. The initial plans were developed to comply with statutory requirements and were later modified to comply with EPA's late release of regulations under 40 CFR Part 112. Work required defining worst case scenarios, completing spill trajectory planning, and securing response resources necessary to respond to various spill scenarios. Received reward and recognition for effective implementation of this program under tight time constraints. Also developed emergency training and drill programs and coordinated annual tabletop drills to comply with the OPA90 requirements.

COMPLIANCE AND RISK MANAGEMENT

Project Director
Standard Operating Procedures | BP, Buckeye, and Tesoro

Project director for program preparing operational procedures covering a range of tasks at terminal and pipeline facilities. Covered tasks included 80+ operations activities such as pipeline receipts, tank truck loading, additive receipts, injector calibrations, meter proving, and others. This work included field review of procedures with client subject matter experts (SMEs), technical writing of the plans, and verification of procedure adequacy with client SMEs.

Project Manager
Tank Overfill Protection | BP | US Pipelines & Logistics

What Project manager for a multi-year project assisting a major oil company to evaluate, design, and implement a comprehensive program for eliminating overfills of above ground tanks at crude oil and refined product terminals. Work included comprehensive review of industry standards in U.S. and U.K., preparation of a Tank Overfill Prevention corporate policy document, preparation of a corporate level standard operating procedure which was used as a template for all facility specific SOPs, evaluation of tank gauging and monitoring equipment alternatives, and preparation of training materials.

Project Manager
Environmental Management Plans | BP

Developed the format and served as project manager for the preparation of comprehensive compliance management plans for 23 refined products terminals. The plans evaluated periodic and event-based requirements contained in applicable local, state and federal

regulations, permits and other compliance plans and documents. The information was presented in a clear format for implementation by the terminal operations teams.

Senior Advisor
Railroad Leased Properties Assessment | Union Pacific Railroad

Senior Advisor for a project which assessed risk associated with hundreds of leased properties owned by the railroad. Risk assessment took into account factors including property use, financial strength of lessee, physical characteristics of the site, surrounding land use, state regulatory environment, and lease terms. Resultant categorization of site risk allowed the client to prioritize spending to reduce risk exposure.

Senior Advisor
Gray Oak Pipeline | Phillips 66

Provided senior consulting support on Gray Oak Pipeline including project staffing & execution, project deliverables tracking, weekly reporting, and strategic support with the project leadership team. For this project, Wood provided permitting support for the entire project including wetland delineations, threatened and endangered species surveys, cultural resource surveys, GIS analyses, Section 404 Nationwide permits with the US Army Corps of Engineers (USACE). The Gray Oak Pipeline is an approximate 800-mile crude oil pipeline for the southern New Mexico border to southeast of Houston with a branch to Corpus Christi. Most of the pipeline consisted of 30-inch coated steel pipe with smaller diameter pipe used in several areas. In addition to the pipeline, there are seven large facilities with storage tanks, and a number of smaller facilities associated with pump stations.

Expert Report of John C. Grams, M.S., P.G.

East Blinebry Drinkard Unit (EBDU)
Lea County, New Mexico

May 28, 2026 | Project No. AR25P108

John Grams, M.S., PG (Texas)
Senior Geologist

Prepared for:
Gallagher & Kennedy
1239 Paseo de Peralta
Santa Fe, New Mexico 87501-2758

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Appendix A – Grams Resume & Technical Experience
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1 Introduction

1.1 Scope of Assignment

I have been retained by Apache Corporation (Apache) to perform an environmental investigation in an area forming a part of the East Blinebry Drinkard Unit (EBDU) located in Lea County, New Mexico, centered on geodetic position North 32.4807053, West 103.123085 (the site) (Figure 1). My compensation, billed through my employer, Terracon Consultants, Inc. (Terracon), is $195/hour for case review, consultation and expert report preparation. I have received support from other members of the Terracon project team in accordance with the fee schedule between Apache and Terracon.

I have been asked to review available information, coordinate field exploration activities, and provide expert opinion with respect to potential impacts to soil and groundwater related to a release of produced water discovered on July 14, 2019 (Incident #NDHR1922141227). The information reviewed includes the New Mexico Oil Conservation Division (NMOCD) incident files, soil chemistry, water chemistry, boring logs, well records and reports generated by prior consultants working on the project.

My involvement with the project began in July 2024. Work completed under my direction includes preparation of work plans, completion of six ground water sampling events, drilling and installation of fifteen monitoring wells and two soil borings, collection of soil and groundwater data, data evaluation, and preparation of technical reports. I have personally visited the site and witnessed drilling and well installation activities.

I have also provided technical review and expert opinion related to Order No. R-23728-A issued by the New Mexico Oil Conservation Commission (OCC) in Case No. 24912. My expert opinion was rendered in testimony to the OCC on January 16-17, 2025.

My opinions are based solely on the facts and data provided to me or collected by me during my work on this matter. This information represents the type of reliable data that professionals in my field typically use when forming such opinions. To the best of my knowledge, all information, statements, and opinions contained herein are true and correct.

My investigation is ongoing, as is discovery in this matter. I reserve the right to supplement or amend my observations and opinions if additional information becomes available after submitting this report.

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1.2 Personal Qualifications and Experience of John C Grams

I, John C. Grams, am an experienced geologist with over 35 years of experience in the oil & gas industry and environmental consulting. I hold a Master of Science in Geology/Geochemistry from Stony Brook University and a Bachelor of Science in Geology from the University of Minnesota. I am a Registered Professional Geologist in Texas and Minnesota. I have expertise in soil and groundwater remediation, operational compliance, permitting, emergency response, and refined product terminal operations. My extensive project experience includes serving as project director, project manager and senior geologist for numerous site investigations and remediation projects in New Mexico and Texas involving soil and groundwater issues at oil & gas and other industrial properties. I have successfully directed over 100 projects involving the release of crude oil and/or produced water at oil & gas production facilities in New Mexico and Texas, including sites with active production wells, injection wells, tank batteries, and closed facilities with plugged and abandoned wells. A professional resume listing my experience and qualifications, as well as a summary of expert testimony over the last four years, is included as Appendix A.

I have extensive experience in site investigation and remediation, particularly in the oil & gas sector. As a project director and project manager, I have managed soil and groundwater investigations and remediation projects at hundreds of oil & gas facilities, including upstream production locations, midstream pipelines, and downstream terminal, bulk plant, and retail locations. My experience has included work in at least 20 states, including Texas, New Mexico, Minnesota, Wisconsin, Michigan, North Dakota, South Dakota, Colorado, Nebraska, Kansas, Iowa, Missouri, Illinois, Indiana, Washington, Oregon, California, Massachusetts, New York, and Virginia. I have direct experience with projects involving emergency response, site investigations, and soil and groundwater remediation projects addressing releases of oil, produced water, and oilfield chemicals. I have coordinated field investigations, data analysis, reporting, remediation alternatives analyses, development of conceptual site models, and communications with federal, state, and local regulatory agencies. Through these projects, I have developed a deep understanding of site-specific challenges and effective remediation strategies to protect groundwater resources and ensure compliance with environmental regulations.

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1.3 Summary of Expert Opinions

The opinions I am providing are based on my review of the available data, my involvement with the site investigation, and my evaluation of soil and groundwater data from the East Blinebry Drinkard Unit (EBDU). These opinions are held to a reasonable degree of professional certainty.

First, it is my opinion that the July 14, 2019 produced water release is not the source of the groundwater plume identified at the site. The highest chloride and total dissolved solids (TDS) concentrations in the groundwater are located approximately 500 to 700 feet southeast of the release location and are not positioned along the expected downgradient flow path from that release. Monitoring wells installed at and near the release location have not shown concentrations consistent with a significant source.

Second, the groundwater data collected between 2019 and 2026 do not support the conclusion that the groundwater plume originated from the 2019 release. Monitoring wells closest to the release have consistently exhibited relatively low chloride and TDS concentrations, while substantially higher concentrations are found in areas removed from the release. In my opinion, that pattern is not consistent with groundwater plume migration from a single, recent release.

Third, it is my opinion that the groundwater plume is generally stable and is not expanding outward from the release area. Statistical analysis shows that most monitoring wells do not exhibit increasing concentration trends, and there is no pattern indicating an advancing plume originating at the release location.

Fourth, groundwater transport conditions at the site preclude the 2019 release as the source of the plume. Based on calculated groundwater velocities, the time required for contaminants to migrate from the release area to the currently impacted locations would range from decades to thousands of years. The observed conditions developed within a much shorter timeframe and cannot be explained by groundwater transport from the 2019 release.

Fifth, soil data collected from the release area demonstrate that the 2019 release did not create a sustained source of contamination to groundwater. Chloride concentrations at depth beneath most of the release area are relatively low, indicating limited downward migration. In addition, remediation activities, including excavation and installation of a liner, further reduced the potential for ongoing leaching.

Sixth, mass balance analysis confirms that the 2019 release cannot account for the magnitude of the groundwater impacts. The total estimated chloride mass associated with

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the release is substantially less than the mass currently present in groundwater. In my opinion, the release is not a sufficient source for the observed plume.

Finally, based on the totality of the evidence—including plume geometry, groundwater flow direction, soil and groundwater chemistry, historical oil & gas operations, and quantitative analyses—it is my opinion that the July 14, 2019 release is not the source of the observed groundwater plume.

2 Project History and Site Data

2.1 Project History

On July 14, 2019, a spill originated from a flowline carrying produced water near a pipeline junction located about 720 feet east of the EBDU Well #37 (Figure 2). Produced water flowed west approximately 675 feet from the release point. Approximately 350 feet west from the release, the water flowed south approximately 450 feet before terminating in a low-lying area. The precise volume of the release and recovered fluid volume are unknown. The spill covered an area measuring approximately 31,320 square feet (0.72 acres). The initial C-141 notification was submitted to OCD on July 26, 2019, and was assigned remediation permit number 1RP-5636.

Apache promptly responded to the release, collecting samples within three days and beginning excavation within two weeks of discovery. A desire to delineate the extent of chloride impacts led to OCD requiring the installation of dozens of groundwater monitoring wells in a larger area south and east of leak location. In the time that has passed from the release to the present and in coordination with OCD, Apache has collected site data by completing approximately 70 soil borings, installing 39 monitoring wells, completing 23 groundwater monitoring events with water level gauging and laboratory analytical testing, and has completed laboratory analytical testing for the water quality parameters listed in 20.6.2.3103 NMAC as Human Health Standards, Domestic Water Supply Standards, and Irrigation use Standards. The data generated from this investigation has made clear—for reasons set forth below—that the July 14, 2019 leak is not the source for the high chloride and TDS concentrations detected in other areas of the EBDU.

A general timeline of the work completed to date is presented below:

- July 14, 2019 – release discovered
- July 17 to 25, 2019 – release delineation and soil sampling
- July 25 to August 8, 2019 – excavated to a depth of 12 feet over an area of 4,431 ft^2 in the low-lying area.
- August 14-15, 2019 – advanced 4 direct push borings to 28-40 feet below grade surface (bgs)

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- August 27-28, 2019 – advanced three borings with air rotary rig to 40-50 feet bgs
- September 19, 2019 – installed two monitoring wells (TMW-1 and TMW-2)
- June 9 through July, 2020 – completed additional soil excavation along the spill path and low-lying area
- September 19, 2020 – installed monitoring wells TMW-3 and TWM-4
- November 28-30, 2022 - installed monitoring wells TMW-5 and TMW-6
- June 12-13, 2023 – installed monitoring wells TMW-7 through TMW-10
- November 28 to December 12, 2023 – installed monitoring wells TMW-11 through TMW-24
- August, 2025 – installed soil borings SB-1, SB-2 and monitoring wells TMW-27, 28, 30, 31, 33, 34, 36, 37, 40, 41, 42, 43, 44, 45, 46.
- Twenty three groundwater monitoring events have occurred on or around the following dates: 09/23/2019, 12/26/2019, 09/30/2020, 12/07/2020, 03/11/2021, 06/10/2021, 10/11/2021, 12/22/2021, 03/01/2022, 05/23/2022, 08/16/2022, 12/15/2022, 03/14/2023, 06/22/2023, 09/06/2023, 12/21/2023, 03/14/2024, 10/23/2024, 11/06/2024, 02/03/2025, 08/28/2025, 12/08/25, and 03/16/26.

In addition to the field work listed above, numerous technical reports have been prepared and submitted to the OCD, including the following:

- September 27, 2019: Remediation Plan
- December 23, 2020: Annual Groundwater Monitoring Report (December 2019 to December 2020)
- December 31, 2020: Closure Report
- April 5, 2023: Scope of Work for Additional Monitoring Wells
- March 27, 2024: 2023 Fourth Quarter Groundwater Monitoring Report
- May 8, 2024: Scope of Work for Additional Investigation
- September 9, 2024: Groundwater Delineation Work Plan
- January 23, 2025: 2024 Fourth Quarter Groundwater Monitoring Report
- March 3, 2025: 2025 First Quarter Groundwater Monitoring Report (report revised and dated April 23, 2025)
- November 11, 2025: Field Activity Report

2.2 Geologic Setting

The groundwater bearing unit beneath the site is referred to as the Piedmont Alluvial Aquifer in the 2016 Lea County Regional Water Plan[1] (Figure 3). This unit is a discontinuous and unconfined aquifer in mostly fine grained alluvial and eolian sand and silt which were deposited in topographically low areas where the Ogallala formation had been

[1] *Lea County Regional Water Plan, State of New Mexico Interstate Stream Commission, Office of the State Engineer, December 2016*

eroded away[2]. The unconsolidated sediments of the alluvial aquifer unconformably overlie the silty clays of the Triassic aged Chinle Formation, which are commonly referred to as the red beds.

The unconsolidated alluvium is typically 60 ft to 70 ft thick in the area of the site, thickening to the south following the southward dip in the surface of the red beds. The saturated thickness as recorded in August 2025 is approximately 20 ft to 30 ft.

The region where the site is located has been extensively developed for oil & gas production from the Central Basin Platform of the Permian Basin, with many of the wells in the area producing from the Drinkard, Tubb, Blinebry, and Paddock members of the Yeso Formation. A review of historical aerial imagery shows some of this past production infrastructure, showing a disposal pit located where SB-2 was advanced. The pit is clearly visible in the 1955 image, and is also present in the 1968 image (Figure 4).

Oil production in Lea County began in the late 1920's. Historically, and prior to adoption of the "pit rule," brine was discarded in evaporation pits near the oil wells. Pits were unlined and not large enough for evaporation to take place at an effective rate. The vast majority of the brine did not evaporate, and the brine itself was not able to evaporate easily due to thin layers of oil on the surface preventing evaporation. The majority of the brine percolated into the sand, and in some cases the caliche at the surface was broken up in order for the water to more easily pass down[3].

Brine from disposal pits moves downward due to gravity until it encounters a less permeable layer, such as clay beds within unconsolidated sediments or the red-beds at the base of the aquifer. Upon reaching the water table limited mixing occurs, but the denser brine tends to settle in the aquifer's lowest areas. The shape of the aquifer base influences brine distribution—brine release above a channel may follow a narrow path, while brine release above a ridge may disperse into multiple channels. Although density differences limit mixing, variations in permeability within the aquifer promote it (Broadhead et al, 2004[3]).

This well documented history of produced water management illustrates the complexity of addressing brine impacts to freshwater aquifers in the oil field. Given the long history of multiple sources of produced water across the area, differentiating one source from another is exceptionally difficult.

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[2] *Nicholson, A., and Clebsch, A., Geology and Ground-Water Conditions in Southern Lea County, New Mexico, Ground-Water Report 6, State Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology, 1961*

[3] *Broadhead, R.F., Zhou, J., and Raatz, W.D., Play analysis of Major Oil Reservoirs in the New Mexico Part of the Permian Basin: Enhanced Production through Advanced Technologies, New Mexico Bureau of Geology and Mineral Resources, Open File Report 479, 2004.*

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3 Groundwater Contaminant Evaluation

3.1 Chemicals of Concern

Chemicals of concern in groundwater are chloride and TDS. Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), and Polycyclic Aromatic Hydrocarbons (PAHs) were not present in groundwater samples from the monitoring wells or the Windmill Well. Several metals (notably iron, aluminum and boron) and radiological parameters were detected in several wells above the 3103 standards, without a discernable pattern[4], and are considered to be incidental to the chloride and TDS.

3.2 Groundwater Movement

The groundwater potentiometric surface as measured on December 3-4, 2025 and March 16, 2026 are presented as Figures 5a and 5b. As shown, groundwater flow is generally to the south-southwest with a gradient of approximately 0.0018 ft/ft. This is consistent with past monitoring data.

3.3 Background Concentrations of Chloride & TDS

Monitoring wells TMW-11, TMW-28, TMW-22, and TMW-21, located around the northern perimeter of the plume upgradient from the release location, are considered to be representative of background conditions in the area. Groundwater concentrations for chloride and TDS for these four monitoring wells are summarized in the following table.

Sample Location	Sample Date	Chloride (mg/L)	TDS (mg/L)
TMW-11	08/12/2025	380	1550
TMW-21	08/13/2025	269	1060
TMW-22	08/20/2025	278	1090
TMW-28	08/13/2025	325	1200
	Average	**313**	**1225**

mg/L = milligrams per liter

[4] *Field Activity Report, East Blinebry Drinkard Unit (EBDU) #37, Terracon Consultants, November 22, 2025*

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4 Source Evaluation

Terracon's November 2025 Field Activity Report included several statements regarding the possible source(s) of the observed chloride and TDS in groundwater. These statements are included below:

> *"The precise source or sources of chloride/TDS at the Site, which has been host to oil and gas activity for over 80 years, is unclear, but it appears unlikely that the 2019 release is a significant source of the observed groundwater impacts. Rather, it is more likely that the groundwater impacts are a result of produced water disposal into disposal pits utilized by previous oil and gas operators on the property" (Executive Summary Section, p2).*

> *"The presence of higher TDS/chloride concentrations away from the release area may indicate plume migration away from the source area over time; however, the groundwater gradient and the hydraulic conductivity associated with the aquifer formation type do not fully support this presumption. Thus, the occurrence of higher TDS/chloride concentrations in the center of the Site compared to the source area implies the occurrence of other releases from historical operations" (Conclusions and Summary section, p19).*

> *"Soil boring SB-2 was advanced through a former disposal pit to investigate this area as a potential source of impacts to groundwater. At this location, chloride in soil was reported above the NMOCD delineation criteria of 600 [milligrams per kilogram] mg/kg from the ground surface to the 50 foot bgs termination depth of the boring. There were also several detections of chloride above 600 mg/kg in samples from TMW-30, drilled approximately 60 feet South-Southeast of SB-02. This area suspected of being a former disposal pit was most likely a source of impacts to groundwater" (Conclusions and Summary section, p19).*

The following sections provide additional evaluation of the site characteristics and potential sources of chloride/TDS in groundwater.

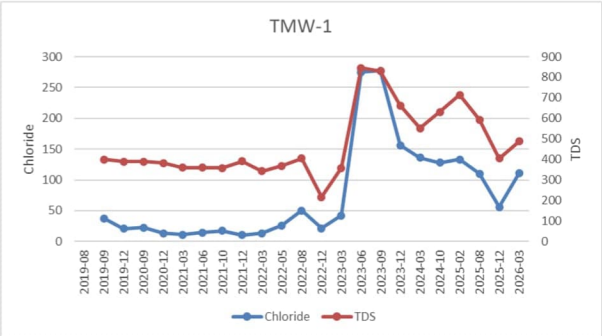
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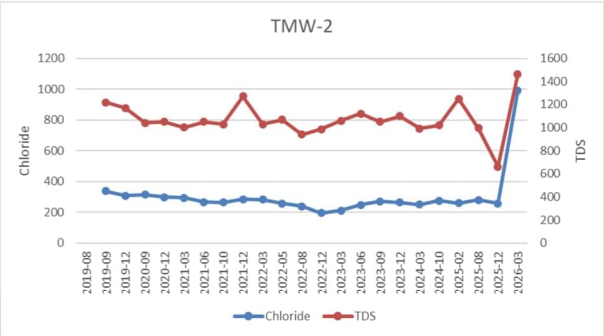
4.1 Observed Spatial Variation of Chloride & TDS in Groundwater Across the Project Area

As shown in Figures 6a, 6b, and 7, the chloride plume in the area of the site is centered approximately 500 to 700 feet southeast of the release location in the area from TMW-34 to TMW-36 and is elongated generally northeast-southwest, as would be expected given the south-southwesterly groundwater flow direction. This general configuration of the plume has been observed since the wells TMW-11 through TMW-24 were installed in late 2023, with the first sampling of these wells completed on December 24, 2023. Chloride concentrations in monitoring well TMW-17 have been over 5,000 mg/L in each of the eight sample events from 12/20/23 to 3/26/26. Chloride concentrations in the other two monitoring wells at the center of the plume, TMW-34 and TMW-36, have ranged from 6,000 mg/L to 8,180 mg/L in the three sample events since the wells were installed from 8/26/25 to 3/16/26. In contrast, the wells northwest of the plume center, installed from 2019 through 2022 and near the July 14, 2019 release, have consistently exhibited relatively low chloride and TDS concentrations compared to the central plume wells (TMW-17, TMW-34, and TMW-36) . These results are discussed in more detail in the following section.

4.2 Groundwater Results 2019-2022

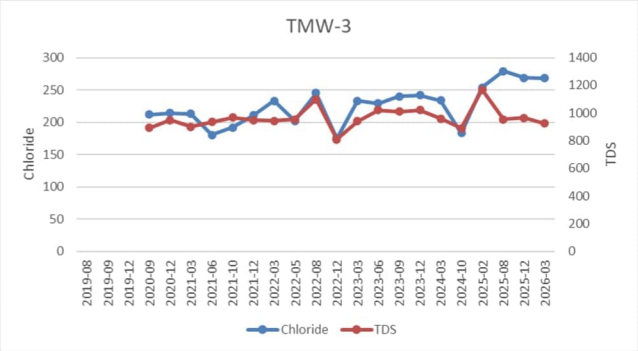
The first monitoring wells installed following the July 2019 release, TMW-1 and TMW-2, were installed immediately south and north (respectively) of the release area in September 2019. These monitoring wells have been sampled twenty three (23) times from September 2019 to March 2026. For context, the monitoring wells installed to the north in order to establish background conditions have averaged a chloride concentration of approximately 300 mg/L. Chloride at TMW-1 has ranged from 10.3 mg/L to 277 mg/L, with an average of 76.5 mg/L. Chloride at TMW-2 has ranged from 195 mg/L to 662 mg/L, with an average of 287 mg/L.

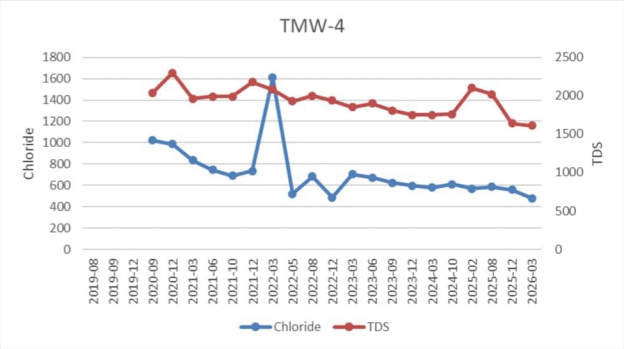




Monitoring wells TMW-3 and TMW-4 were installed in September, 2020. TMW-3 is approximately 300 feet west of the southern release path, and TMW-4 is approximately 200 feet south and downgradient of the release point. These wells have been sampled

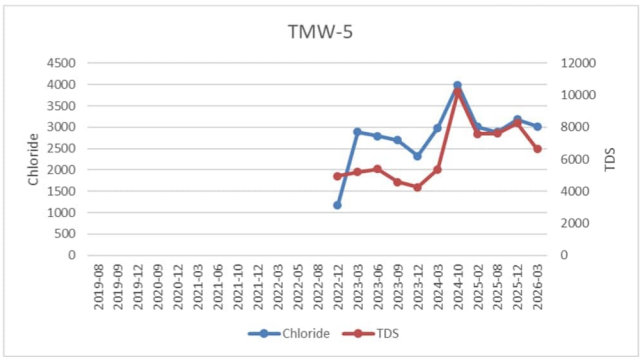
seventeen (17) times from September 2020 to March 2026. Chloride in TMW-3 has ranged from 175 mg/L to 328 mg/L, with an average of 228 mg/L. Chloride in TMW-4 has ranged from 480 mg/L to 1,620 mg/L, with an average of 720 mg/L.

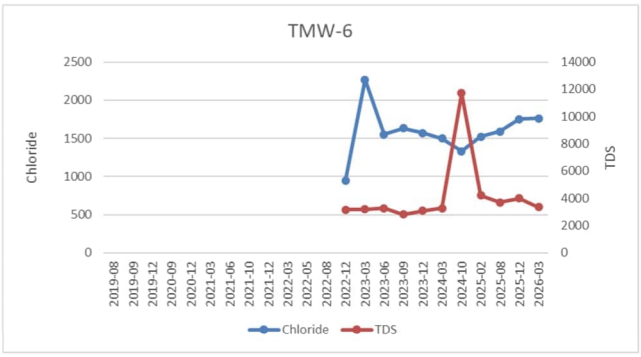




Samples from these four monitoring wells installed north, south, east and west of the release location and the low area have not exhibited chloride concentrations over 1,000 mg/L with the exception of a single outlier of 1,610 mg/L reported at TMW-4 in March 2022. Considering the size of the plume and elevated chloride concentrations observed at the center of the plume identified by TMW-17, TMW-34, and TMW-36 from 2023 to present, it is not reasonable to conclude that this plume is a consequence of the July 14, 2019 release. Any argument that the two matters are connected would require a large plume of chloride to somehow bypass the monitoring wells in close proximity to the leak and then migrate rapidly to the southeast to cause high chloride concentrations much farther away.

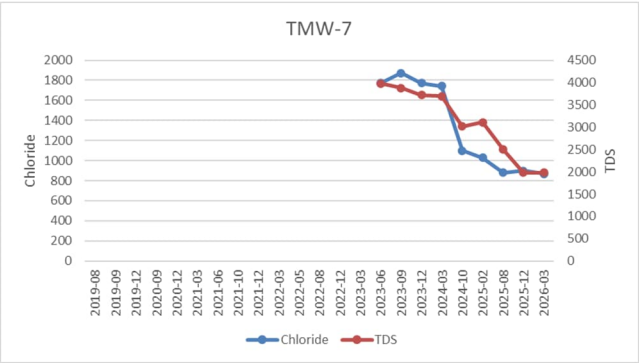
The next set of monitoring wells, TMW-5 and TMW-6, were installed in December 2022. TMW-5 is approximately 125 feet east of the center of the low-lying area and 400 feet southwest and downgradient of the release location. TMW-6 is approximately 250 feet south and downgradient from the release location. These wells have been sampled 11 times from December 2022 to March 2026. Chloride in TMW-5 has ranged from 1,170 mg/L to 3,180 mg/L with an average of 2,695 mg/L. Chloride in TMW-6 has ranged from 941 mg/L to 2,270 mg/L with an average of 1,608 mg/L.

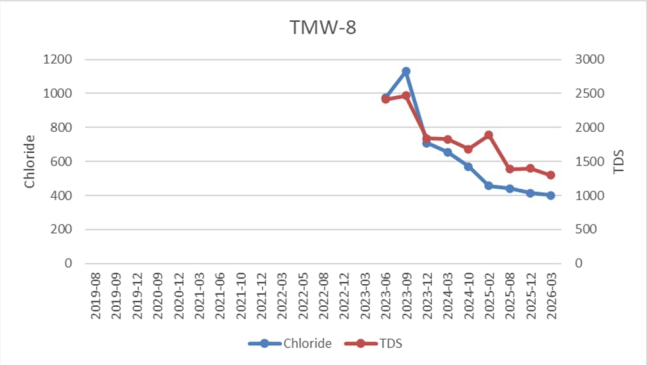


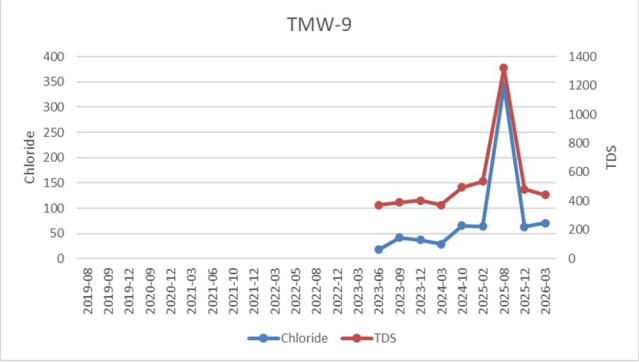


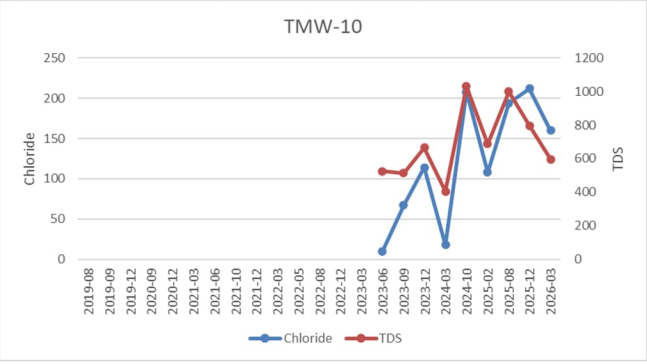
Monitoring wells TMW-7, TMW-8, TMW-9 and TMW-10 were installed June 2023. Analytical results for these wells are summarized in the table and charts below. The decreasing trends in TMW-7 and TMW-8 are notable, and are believed to be the result of these two wells having been installed through the polyethylene liner that was placed over the excavation area by Apache during its remediation of the July 14, 2019 release. The liner has the effect of limiting chloride leaching from soil to the groundwater, and appears to be functioning as intended, as indicated by the decreasing concentrations of chloride in these wells. Monitoring wells TMW-9 and TMW-10 are south of the release area and cross-gradient from the center of the groundwater plume. TMW-10 is located between the plume center and the southernmost extent of the release area. Although these wells were installed nearly four years after the release, the concentrations are generally low, and provide no indication that a large highly concentrated plume of chlorides existed at these locations near the 2019 release.

Well	Location	Minimum Chloride (mg/L)	Maximum Chloride (mg/L)	Average Chloride (mg/L)
TMW-7	At point of 2019 release	867	1870	1280
TMW-8	In south trending arm of release path, north of low area	414	1130	669
TMW-9	At southeast edge of low area	18	343	81
TMW-10	At southwest edge of low area	10	212	121









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4.3 Mann-Kendall Trend Analysis

To quantitatively evaluate concentration trends, the groundwater analytical data for chloride and TDS in wells TMW-1 through TMW-24 and the Windmill Well was evaluated using a Mann-Kendall statistical analysis for trends. The more recently installed wells from August 2025 do not yet have sufficient data for a statistically significant analysis and were not evaluated. The Mann-Kendall test indicated a generally stable plume, with most of the monitoring wells showing a stable trend or no trend. The analysis indicated that chloride concentrations are showing increasing trends in several monitoring wells west of the plume center (TMW-1, TMW-3, TMW-5, TMW9, TMW-10 and the Windmill Well). Chloride concentrations were shown to be decreasing in several monitoring wells northwest of the plume center (TMW-2, TMW-4, TMW-7, TMW-8, TMW-12). The Mann-Kendall trend analysis output is presented in Appendix B.

The Mann-Kendall statistical analysis shows that most monitoring wells do not exhibit increasing concentration trends, and there is no pattern indicating an advancing plume originating at the release location.

4.4 Advective Flow

Groundwater transport was evaluated using a screening-level analytical approach that combines estimated groundwater velocity with a background-corrected first-order attenuation model (Appendix C). The results of this model estimate the advective travel time from TMW-7 (installed at the source of the 2019 release) to TMW-45 (at the southern fringe of the plume) ranges from approximately 32 years to more than 3,000 years, depending on the assumed hydraulic conductivity. This travel-time estimate indicates that chloride impacts observed at TMW-45 in 2025 are unlikely to be explained by advective migration from the 2019 release at TMW-7. Reported chloride concentrations at TMW-45 in 2025 ranged from approximately 1,370 to 1,720 mg/L, which is substantially higher than the background concentration predicted by the model at that downgradient distance. This deviation suggests that the groundwater conditions at TMW-45 are most likely influenced by additional chloride sources, pre-existing impacts, preferential transport pathways, or other site-specific conditions not captured by the simplified one-dimensional attenuation model.

4.5 Soil Chloride Data

Soil Chloride in Area of 2019 Release

As part of its diligence in responding to this release, Apache collected approximately 251 soil samples in 2019 and 2020 from the “T” shaped area of the release and analyzed those samples for chloride. The release area is split into three sections for the purposes of this discussion.

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North Area: Soil borings in the northern, east-west section of the release reported chloride concentrations below 300 mg/kg at a depth of ten feet, indicating the release did not infiltrate to groundwater in this area, which is at approximate depth of 55 feet to 60 feet.

South Area: Soil borings advanced in the southernmost extent of the spill path in the current low-lying area reported chloride concentrations below 100 mg/kg at a depth of 25 feet, with continued low concentrations below 100 mg/kg to the termination depths of the borings at 45 feet. This indicates the chlorides did not infiltrate to groundwater in this southern-most area of the spill path.

Central Area: Two borings in the central, north-south section of the release path reported chloride concentrations of 1,800 mg/kg (SP-5/BH-7) and 820 mg/kg (SP-14/BH-6) at depths of 50 feet. The presence of relatively low concentrations of chloride at these depths indicate this may be a minor, localized source of impacts to groundwater, but could not be a pathway for the large chloride plume. For contrast, chloride concentrations in soil at the ground surface to one foot depth were reported in the range of approximately 10,000 mg/kg to 29,000 mg/kg, which is the range of values expected for soils saturated or nearly saturated with chloride from a produced water spill. The values reported at depths in the borings discussed above (800-1800 mg/kg) are not saturated, and cannot be considered a pathway to a regional groundwater plume of the magnitude observed at the site.

Saltwater Evaporation Pit

A saltwater evaporation pit was operated in the area of current TMW-30 from at least 1955 to 1968 as shown in aerial images presented as Figure 4. NMOCD was concerned this area could be a potential source of chloride and requested a boring and monitoring well be installed at this location. Boring SB-02 was advanced in August 2025 and encountered chloride concentrations in soil from 1,140 mg/kg at the ground surface to 1,970 mg/kg at the termination depth of 50 feet. This is just above the water table, indicating this is a potential source of contaminants to groundwater. The boring drilled for TMW-30 was advanced approximately 50 feet south of SB-02 and exhibited chloride concentrations in soil of 394 mg/kg at 50 to 55 foot interval and 344 mg/kg at the 55 to 60 foot depth interval. Groundwater is at approximately at a depth of 60 feet bgs at this location, suggesting the potential chloride impacts from the pit extend across this area.

4.6 Mass Balance

Mass of Chloride in Soil at Time of Release

A screening-level mass-balance evaluation was performed to estimate the mass of chloride in soils near the source of the 2019 release. The analysis was based on the soil chloride data collected from the spill area between 2019 and 2020. The analysis involved dividing the release footprint into nine sections based on the spatial distribution of soil boring data within the spill area. Within each section, the affected soil profile was subdivided into representative depth intervals, and chloride concentrations were assigned to each interval based on the available analytical results. The estimated chloride mass was then evaluated

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based on the soil concentrations and impacted soil volume of each section. Calculations and maps used in this evaluation are provided as Appendix C.

In some locations the bottom soil sample in a boring reported elevated chlorides, such that the full depth of impact is not known. In these cases the lowermost concentration was assumed to extend an additional 10' - 20' depth. Using this method the mass of chloride in soil at or shortly after the time of the release was estimated to be 133,000 kilograms (kg) (293,025 pounds = 146.5 tons).

This mass estimate is based on data prior to the soil excavation. Apache's excavation removed over 8,000 tons of soil, significantly reducing the mass of chloride remaining. Following the excavation, a polyethylene liner was installed beneath a significant portion of the excavation, further limiting downward migration of any remaining chlorides. The result of the remediation work was to limit the volume of chloride available to infiltrate into the groundwater.

Mass of Chloride in Groundwater

The mass of chloride in the groundwater plume was estimated using reported chloride concentrations from March 2026. The area of the plume and concentration bands were generated using a kriging function in Golden Software's Surfer software package. The saturated thickness was estimated from the borings completed to the base of the aquifer in August 2025. Effective porosity was assumed to be 0.3, which is generally representative of sand to silty sand. Groundwater with chloride less than 500 mg/L was not included in the mass calculation. A map showing the areas and concentration bands is presented as Figure 7 . This analysis indicates the mass of chloride in the groundwater plume in March 2026 is approximately 2,617,602 pounds (1,309 tons).

Mass Balance Summary

The mass of chloride in soil based on soil data collected shortly after the release is estimated to be approximately 146.5 tons. This mass was reduced by excavation and vertical migration to groundwater was limited by the poly liner. The estimated mass of chloride in the aquifer in the overall area being monitored is on the order of 1,309 tons. There was not enough chloride released and present in the soil after the release to account for the current groundwater plume.

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4.7 Summary

This expert report evaluates potential soil and groundwater impacts associated with a produced water release discovered on July 14, 2019, at the East Blinebry Drinkard Unit (EBDU) #37 in Lea County, New Mexico. The investigation included extensive fieldwork, data review, and technical analysis completed between 2019 and March 2026.

Following the release, Apache Corporation implemented prompt remediation, including soil excavation and installation of a liner system, and conducted a comprehensive site investigation consisting of approximately 70 soil borings, 39 monitoring wells, and 23 groundwater sampling events. The primary chemicals of concern identified in groundwater are chloride and TDS, with no significant petroleum hydrocarbon impacts detected.

A dissolved solids plume has been delineated across a broad area, with its highest concentrations located approximately 500 to 700 feet southeast of the 2019 release point. Spatial distribution, groundwater flow direction, and historical monitoring data consistently show that the highest chloride concentrations are not centered near the release area and have remained relatively stable over time.

Multiple lines of evidence indicate that the 2019 release is not the source of the observed groundwater plume. Monitoring wells located near the release have consistently shown comparatively low chloride concentrations, while significantly higher concentrations occur farther away from the release location and outside the expected migration pathway. Statistical trend analysis demonstrates a generally stable plume, and groundwater flow modeling indicates that transport from the 2019 release to the plume extent would require decades to millennia, which is inconsistent with observed conditions.

Mass balance calculations further support this conclusion: the estimated chloride mass released to soil in 2019 (approximately 135 tons, subsequently reduced through excavation) is substantially lower than the estimated chloride mass currently present in groundwater (approximately 1,309 tons in March 2026).

The data instead support the conclusion that the groundwater impacts are more likely associated with historical oil and gas operations in the area, particularly legacy produced water disposal practices such as unlined evaporation pits. Soil data collected from a former disposal pit area confirm elevated chloride concentrations extending to the water table, identifying this feature as a probable contributing source.

In summary, the weight of hydrogeologic, analytical, and historical evidence demonstrates that the currently observed groundwater plume is not attributable to the July 14, 2019 release but is most likely the result of legacy contamination from historical oilfield practices at the site.

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FIGURES

Figure 1 – Site Location Map

Figure 2 – Monitoring Well Location Map

Figure 3 – Regional Geologic Setting

Figure 4 – Historic Aerial Images

Figure 5a– Groundwater Potentiometric Surface Map December 2025

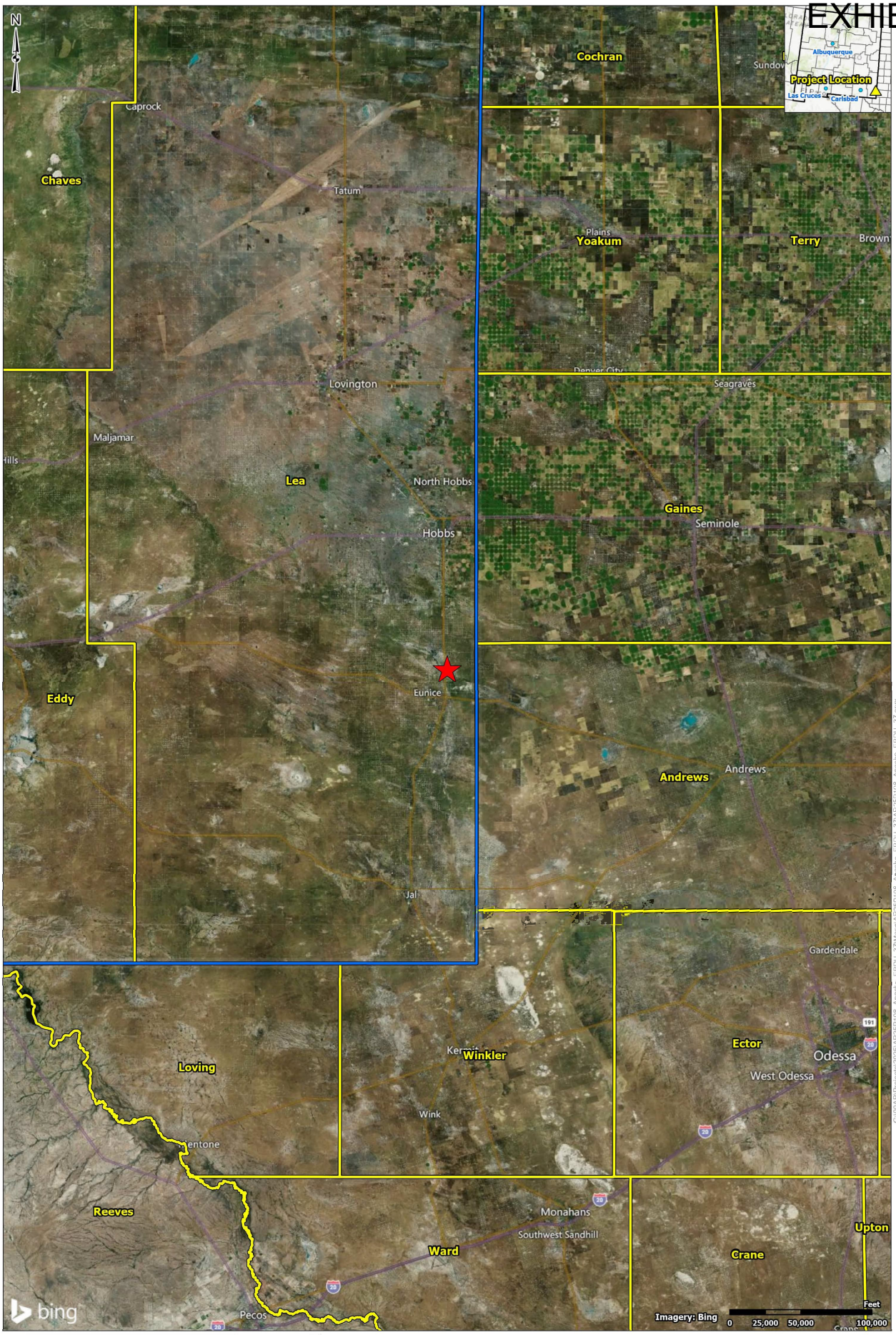
Figure 5b– Groundwater Potentiometric Surface Map March 2026

Figure 6a – Chloride Isoconcentration Map December 2025

Figure 6b - Chloride Isoconcentration Map March 2026

Figure 7 - Chloride Isoconcentration Bands March 2026

EXHIBIT B-2



Project Location
State Line
County Line

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Project No.:	[illegible]
Date:	Oct 09 2025
Drawn By:	JWL
Reviewed By:	JCG

terracon
5847 50th St
Lubbock, TX
PH. 806-300-0140 terracon.com

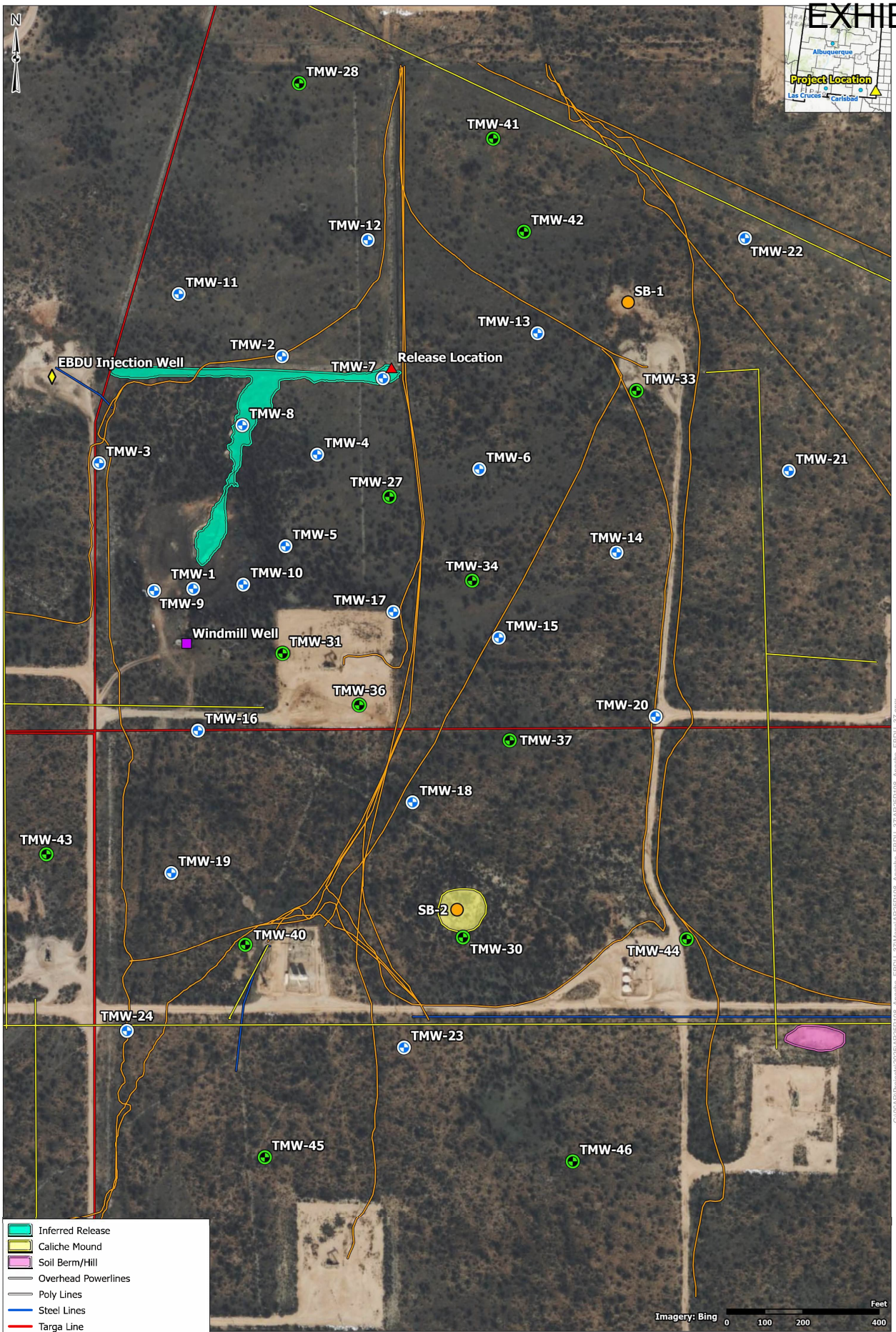
Site Location Map

EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

Figure

1

EXHIBIT B-2

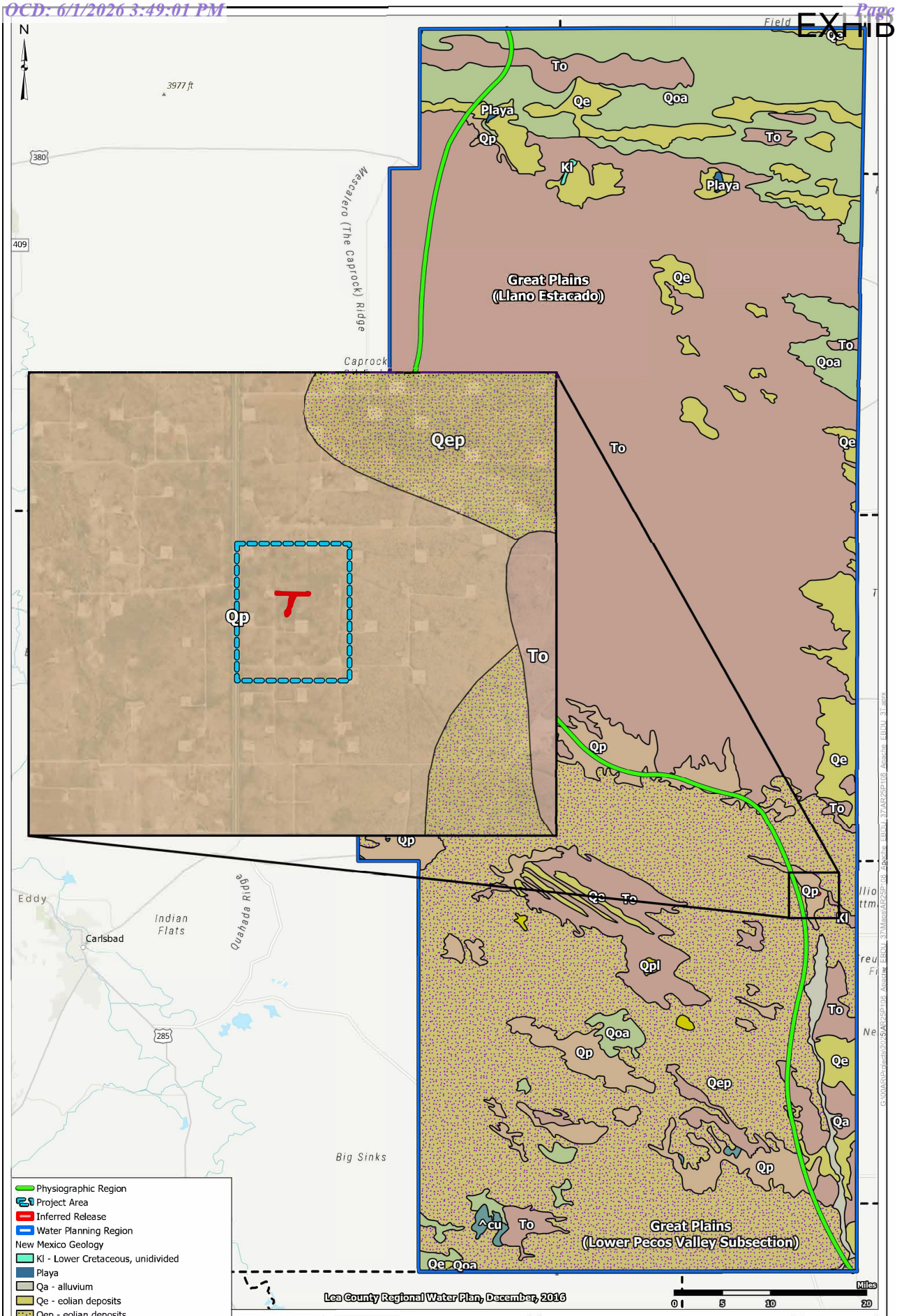


Project No.: AR25P108 Date: Oct 23 2025 Drawn By: JWL Reviewed By: JCG	terracon 5827 Point Lubbock, TX PH. 806-300-0140 terracon.com	Monitoring Well Location Map EBDU 37 32.4807053, -103.123085 Lea County, New Mexico	Figure 2

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Received by OCD: 6/1/2026 3:49:01 PM

EXHIBIT B-2



Project No.:	AR25P108
Date:	Oct 21 2025
Drawn By:	JWL
Reviewed By:	JCG

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Hydrogeologic Setting

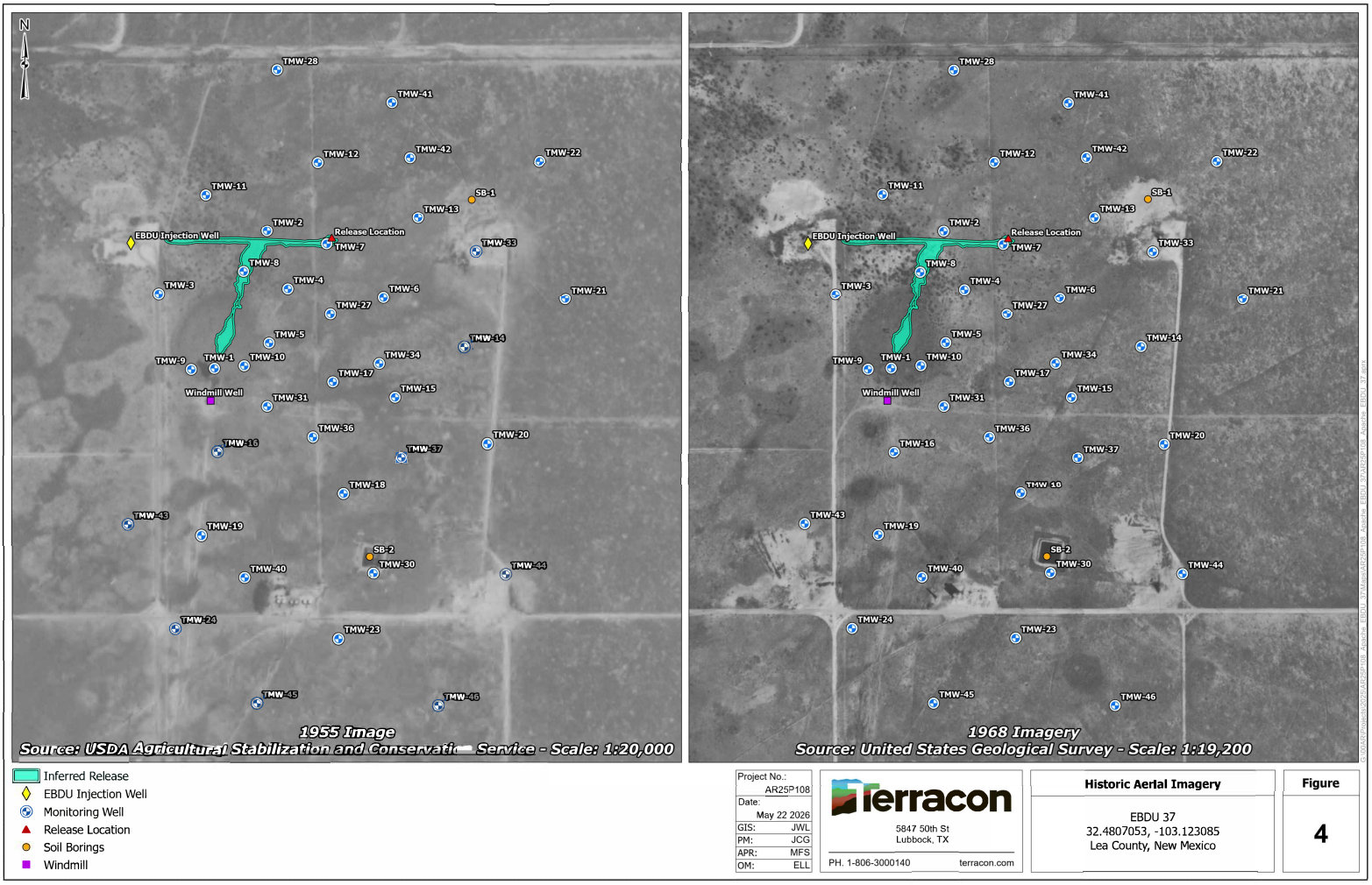
EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

Figure

3

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EXHIBIT B-2



- Inferred Release
- EBDU Injection Well
- Monitoring Well
- Release Location
- Soil Borings
- Windmill

Project No.:	AR25P108
Date:	May 22 2026
GIS:	JWL
PM:	JCG
APR:	MFS
OM:	ELL

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Historic Aerial Imagery

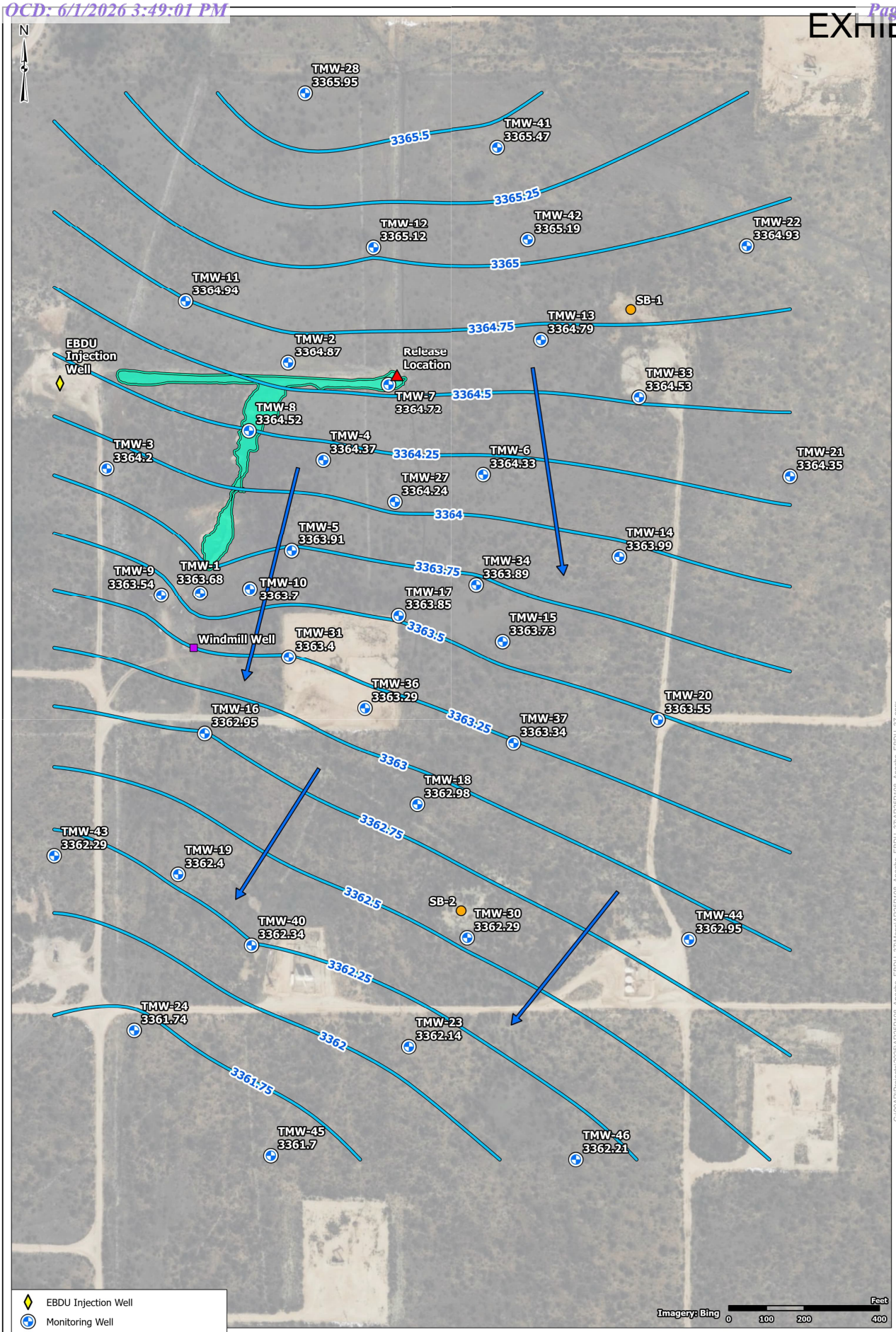
EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

Figure

4

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EXHIBIT B-2



Project No.:	AR25P108
Date:	May 22 2026
Drawn By:	JWL
Reviewed By:	JCG

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Lubbock, TX

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Groundwater Potentiometric Surface Map – December 2025

EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

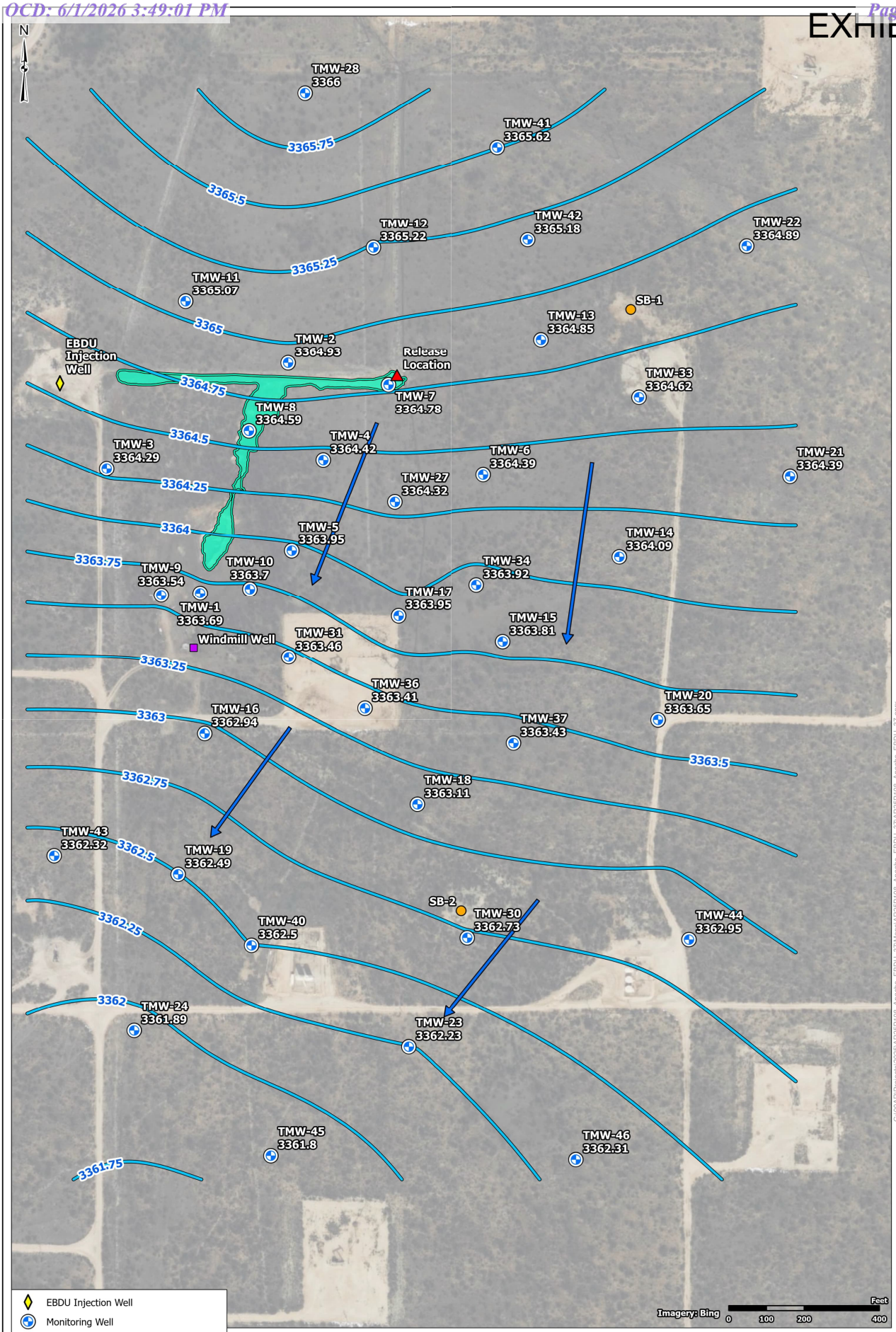
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5a

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EXHIBIT B-2



Project No.:	AR25P108
Date:	May 22 2026
Drawn By:	JWL
Reviewed By:	JCG

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Lubbock, TX

PH. 1-806-3000140 terracon.com

Groundwater Potentiometric Surface Map – March 2026

EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

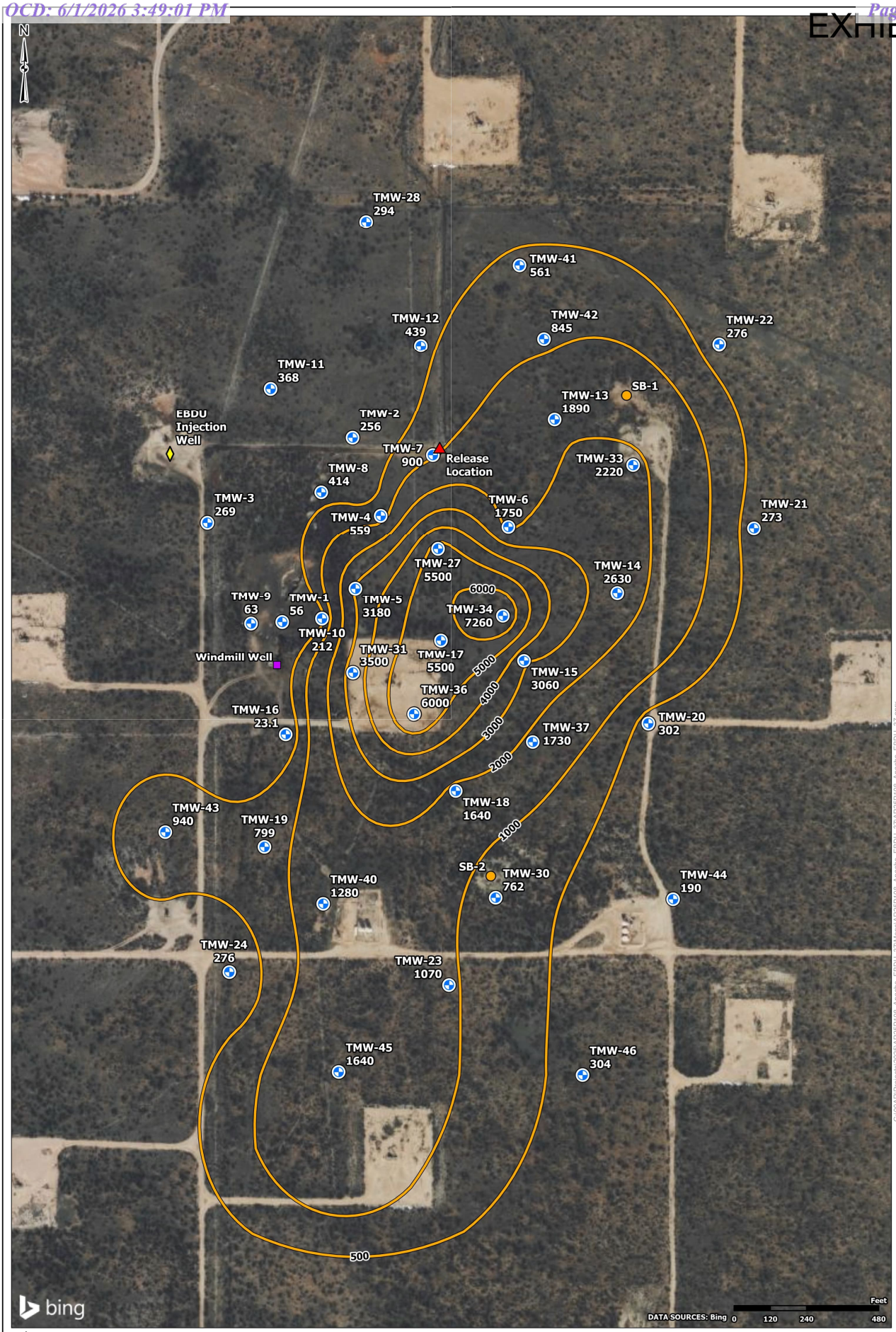
Figure

5b

Released to Imaging: 6/1/2026 4:16:59 PM

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EXHIBIT B-2



- EBDU Injection Well
- Monitoring Well
- Release Location
- Soil Borings
- Windmill Well
- Chloride Contours (mg/l)

Project No.:	AR25P108
Date:	May 22 2026
Drawn By:	JWL
Reviewed By:	JCG

terracon
5847 50th St
Lubbock, TX
PH. 1-806-3000140 terracon.com

Chloride Isoconcentration Map – December 2025

EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

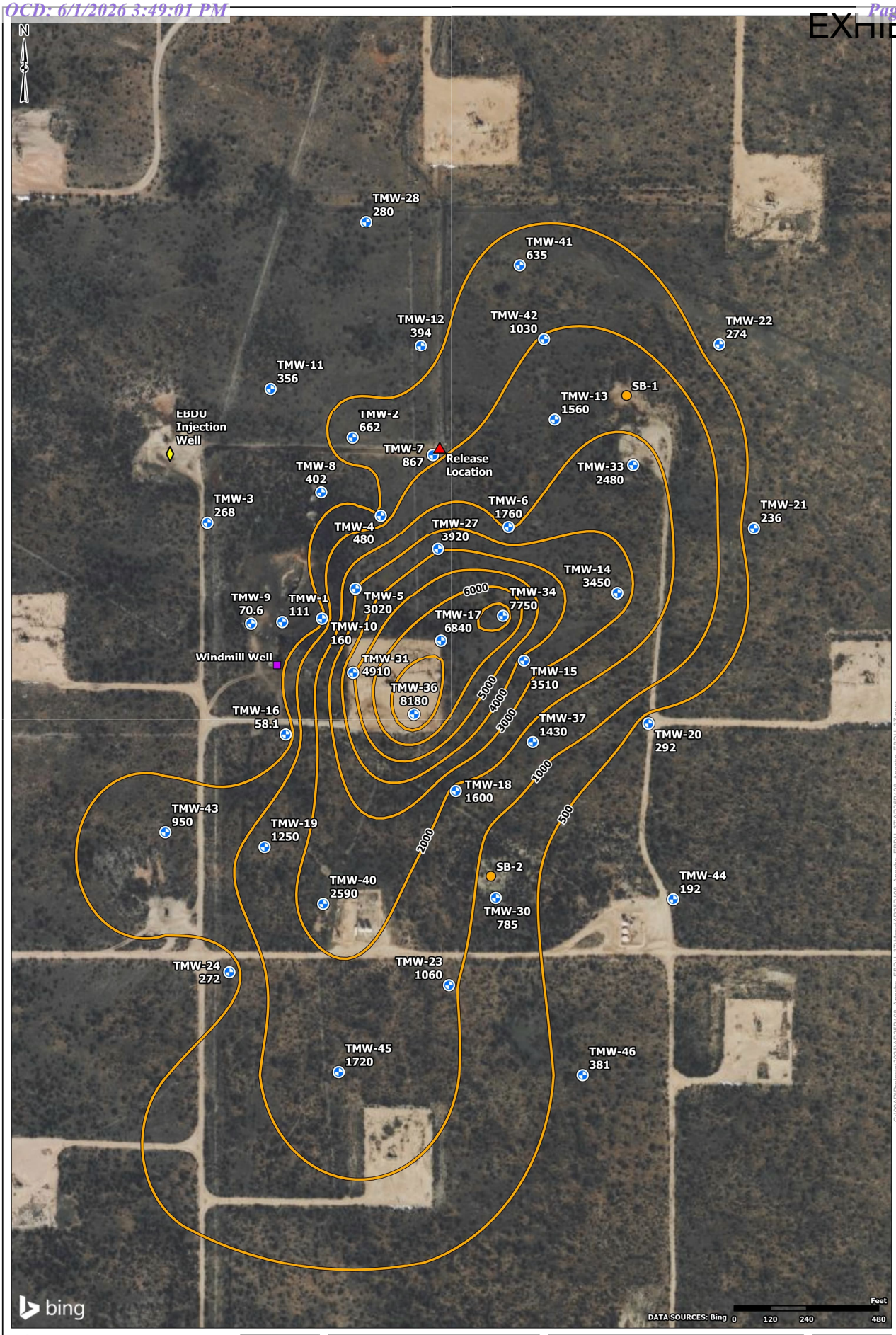
Figure

6a

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Received by OCD: 6/1/2026 3:49:01 PM

EXHIBIT B-2



- EBDU Injection Well
- Monitoring Well
- Release Location
- Soil Borings
- Windmill Well
- Chloride Contours (mg/l)

Project No.:	AR25P108
Date:	May 22 2026
Drawn By:	JWL
Reviewed By:	JCG

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Chloride Isoconcentration Map – March 2026

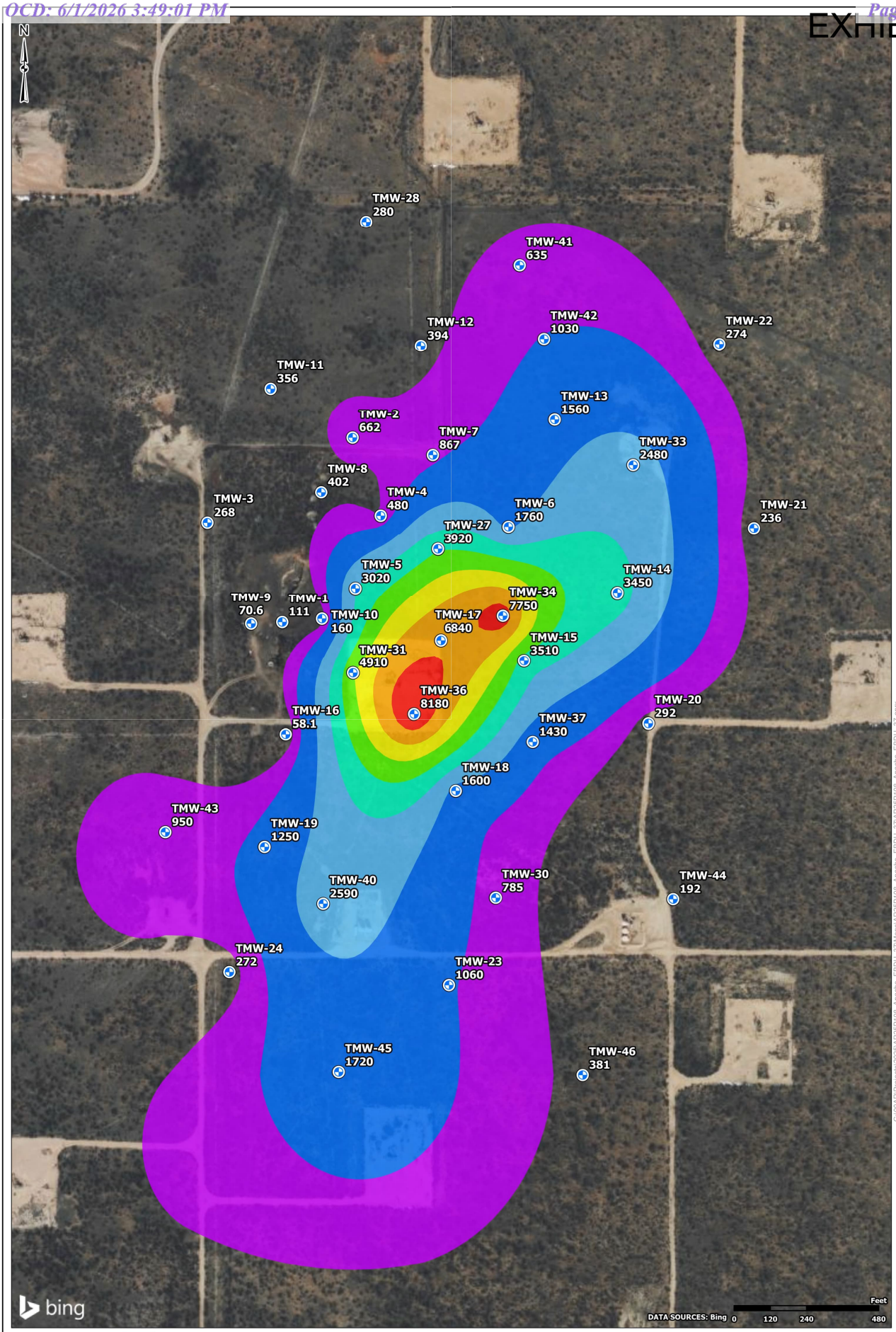
EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

Figure

6b

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EXHIBIT B-2



Monitoring Well

Chloride Range

- 500 to 1000
- 1000 to 2000
- 2000 to 3000
- 3000 to 4000
- 4000 to 5000
- 5000 to 6000
- 6000 to 7000
- >7000

Project No.:	AR25P108
Date:	May 22 2026
Drawn By:	JWL
Reviewed By:	JCG

terracon

5847 50th St
Lubbock, TX

PH. 1-806-3000140 terracon.com

Chloride Isoconcentration Bands March 2026

EBDU 37
32.4807053, -103.123085
Lea County, New Mexico

Figure

7

TABLES

Table 1 – Soil Chloride Data

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EXHIBIT B-2

Table 1
Chloride Concentrations in Soil
EBDU 37 | Lea County, New Mexico
Terracon Project AR25P108

Northern Area

Depth (ft):	0	1	2	3	3.5	4	5	6	8	10	12	14	15	16	18	20	25	30	35	40	45	48	50
SP-1	16963						400			96													
SP-2	28800						1150			273													
SP-3	10						2720			192			80										

Middle Area

Depth (ft):	0	1	2	3	3.5	4	5	6	8	10	12	14	15	16	18	20	25	30	35	40	45	48	50
SP-4/BH-8	17312	8757	5143	21	4876	5128	4020			1350			49			27	46	45	42	54	45		39
SP-11							7745			7053													
SP-5/BH-7	10100		5200	7710		4240	614	10100	9330	3840 / 7360	1420	3532	2160			3460	2590	2760	2870	3300	4230		1800
SP-10							6621			7173													
SP-14/BH-6				21			1740			4180			1940			3710	38	2280	2710	2710	2500		820
SP-6	2	2																					
SP-9							6160			5520			2800										
SP-13/S-4													2880			4600	3120	4360	5280	3040	160	128	

Southern Area

Depth (ft):	0	1	2	3	3.5	4	5	6	8	10	12	14	15	16	18	20	25	30	35	40	45	48	50
BH-2										80	18	10		10	10	10	12						
SP-7/BH-1	2		3089	14		5758	20	6777	5998	3748 / 12	4026 / 13	3781 / 13		4482 / 23	34	25	20	20	27	66	160		
SP-8/BH-3				26			4240 / 22			2240 / 774	1090 / 666	419		60	89	227	33	21	18	23	24		
SP-15/BH-4				16			42			24	12	10		15	13	12	13	21	18	23	24		
SP-16/BH-5				30			27			10	10	10		12	9	10	30	23	18	17	26		
S-2	10						22			9			1			2	<1.06	4	5	3			
S-3	3						2			1			<1.01			1	<1.05	<1.08	<1.09	1			
S-1	68						58			16			10			14	11	13	6	8	21		4

	Results over 300 mg/kg
	Results under 300 mg/kg
	No data
	Data unclear
35	All results reported as mg/kg
3748 / 12	Results beofre excavation / Results after excavation

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APPENDIX A

Grams Resume & Technical Experience

John C. Grams, P.G.

SENIOR GEOLOGIST

PROFESSIONAL SUMMARY

Mr. Grams has over 35 years' experience working in the oil & gas industry and environmental consulting. Areas of expertise include soil & ground water remediation, operational compliance, permitting, emergency response, emergency planning & drills, and oil & gas facility operations. John helps clients by leveraging his broad background in industry and consulting to understand and frame solutions to environment related business problems. He is skilled at listening to a client's challenges, then designing and implementing a solution to help the client achieve their objectives.

PROJECT EXPERIENCE

REMEDIATION

Expert Testimony
Oil & Gas Site Investigation and Remediation

Provided expert testimony on behalf of an independent oil & gas producer in a case hearing in front of the Oil Conservation Commission of the New Mexico Oil & Gas Conservation Division. The case involved technical issues related to a groundwater investigation at a site where a release of produced water had occurred. Written and oral testimony was provided as an expert in geology and hydrogeology. Project ongoing.

Expert Testimony
Plugged and Abandoned Wells

Provide expert report on project investigating the status and potential environmental impacts related to plugged and abandoned oil wells in the Permian Basin of West Texas. Also coordinated the field investigation and oversight work on numerous well locations involved in the dispute. 2023-2025.

Expert Testimony
Oil & Gas Site Investigation and Remediation

Provide expert report on projected environmental costs at former oil & gas wells, injection wells, and related assets at locations in Southeastern Eastern New Mexico. 2025.

Project Director
Oil & Gas Site Investigation and Remediation

Provide senior review, direction, and project QA/QC on over 100 projects involving the release of crude oil and/or produced water at oil & gas production facilities in Texas and New Mexico. Clients include major oil companies and smaller independent producers. Ongoing.

Project Manager
Water Well Investigation | Railroad Commission of Texas

Project Manager for investigation into source(s) of brine observed in former irrigation well in Pecos County, Texas. Project ongoing. 2025

Project Manager

Chloride Groundwater Investigation | Independent Oil & Gas Producer

Coordinate field investigation, data analysis, and reporting for a project involving a release of produced water in New Mexico which impacted a drinking water aquifer. Ongoing

Technical Expert

Chloride Groundwater Investigation | Independent Oil & Gas Producer

Prepare technical evaluation of brine upwelling in karst terrain in Eddy County, New Mexico. 2026.

Project Manager

Chloride Groundwater Investigation | Railroad Commission of Texas

Coordinate field investigation, data analysis, and reporting for a project focused on identifying the source of groundwater contamination at a residential property build on and around historical oil & gas exploration properties in Texas. Ongoing.

EDUCATION
Master of Science,
Geology/Geochemistry,
Stony Brook University

Bachelor of Science,
Geology,
University of Minnesota Duluth

CERTIFICATIONS
Registered Professional Geologist:
Texas #15324
Minnesota #30747

40-Hour HAZWOPER

ICS 100, 200, 300, 700, Planning Section Chief Training

AFFILIATIONS
API, ILTA, AIPG

WORK HISTORY
Terracon Consultants, Inc.,
Environmental Dept. Manager
2022 - Present

GHD
Business Group Lead – Emergency Preparedness & Response
2021-2022

Wood Group/Foster Wheeler/Amec
Principal Consultant & Midstream Segment Lead
2014-2020

Antea Group
General Manager, Project Manager, Hydrogeologist
1999 – 2014 and 1988-1992.

BP Amoco
Environmental Coordinator
Terminal Manager
Business Analyst
1992 - 1999

Project Manager
Spring Valley Terminal | BP/Amoco

Project Manager for investigation and corrective action at a bulk terminal subject to state consent order. Challenges of the project resulted from gasoline and diesel fuel impacts to a fractured limestone aquifer with complicated hydrogeology, a strong downward vertical component of flow, and the existence of high permeability pathways for horizontal migration at depth. Free phase product was present at depths greater than 250' at the source of the contamination, while MTBE had migrated to over 1 mile from site. Several potable wells were impacted by contaminants and required replacement. As Project Manager, Mr. Grams prepared numerous communications with the state, prepared community outreach newsletters, coordinated client communications, facilitated meetings, and prepared annual budgets and lifecycle spending forecasts. Field work included installation of multi-level sampling wells (Westbay and FLUTe systems), mapping of surficial geology, completing a sodium bromide tracer study, redesign of the terminal's surface water management system, soil excavation, and installation and operation of remediation systems at two distinct areas of the terminal.

Project Manager
Superior Terminal | BP/Amoco

Project Manager for investigation and corrective action at bulk distribution terminal. Challenges of the project included extensive history of operations going back to the early 1900's, history of rail car loading/unloading and rail car maintenance facility, low permeability clay with interbedded sands, and proximity to Lake Superior. Free phase hydrocarbons were present over an area of approximately 20 acres, with observed hydrocarbon up to 12' thick in wells. Mr. Grams prepared client and regulatory communications, community outreach letters, budgets, and lifecycle spending forecasts. Work at the site included decommissioning unused pipelines, pipe manifolds, and process tanks, soil excavation, passive soil venting, vacuum assisted product recovery, and dual phase recovery.

Project Manager / Hydrogeologist
Underground Storage Tank Projects

Planned and executed all phases of environmental field work including surface sediment sampling, soil vapor investigations, soil borings, monitoring wells, geoprobe, potable supply wells, vapor investigations in buildings and utilities, and various field analytical techniques. Designed, conducted, and analyzed results from draw down tests in monitoring wells, pumping tests in recovery wells, and dewatering activities during excavation projects. Prepared conceptual design for soil and ground water remediation systems, including soil vapor extraction, dual phase liquid recovery, air sparging, and excavations and worked with engineers on final design and system construction.

Project Manager

Liability Estimation and Risk Transfer

Coordinated due diligence activities, completed lifecycle cost models, and negotiated pricing with insurers and clients for two environmental risk transfer projects involving hundreds of retail service stations. One portfolio was in the Eastern U.S. and the other was in Central U.S.

Project Manager
Environmental Business Manager | BP

Three-year assignment working as an outsourced Environmental Business Manager with legal delegation of authority to manage environmental remediation projects on behalf of BP. Responsible for a portfolio of 400+ retail and terminal facilities over a 15-state area working with BP's legal department prepared annual liability estimate used to set reserves, managed annual budgeting and reporting, and coordinated environmental work done by other consultants.

EMERGENCY PLANNING AND RESPONSE

Planning Section Chief
Gasoline Release | Ford Motor Company

Served as planning section chief within a Unified Command structure following a gasoline release that resulted in evacuation of 500 residential properties, a number of businesses, and shutdown of a Ford auto manufacturing plant. Responsible for coordinating incident information, facilitating daily briefing schedule, and preparation of daily incident action plans.

Project Director
Refined Product Release | ExxonMobil PL

Project director for an emergency response to a pipeline release in Northeast Houston. GHD provided air monitoring services in the work area and surrounding community on 24/7 basis for three weeks with daily reporting to support regulatory communications.

Project Director
Refined Product Release | Buckeye Pipeline

Project director and client account manager for an emergency response to a pipeline release in Eastern Wisconsin that threatened the aquifer for a community that relied upon private water supply wells. Challenging elements to the response included requirements to

sample over 300 residential wells, repeat sampling with requirement to make data available to the public within 48 hours, fractured rock groundwater system, and intense public scrutiny of the incident.

Project Manager
Tabletop Spill Drills | Buckeye | Illinois

Completed the design, completion and documentation for tabletop exercises at pipeline terminals in Illinois. Developed the spill scenarios, drill manual and participants guide, facilitated the drills, and prepared documentation following completion of the drills.

Incident Commander
Jamestown Terminal | BP Amoco | N.D.

Served as Incident Commander for the oil spill response team at a refined products terminal in North Dakota. Supervised required OPA90 compliance activities such as employee training, tabletop drills, and equipment deployment drills.

Project Manager
Facility Response Plans | Amoco Oil Co. Upper Midwest Terminal Operations

Mr. Grams had compliance responsibility for 10 petroleum bulk terminals during the initial rollout of the Oil Pollution Act of 1990. In this capacity he prepared Facility Response Plans (FRP) for the 10 facilities, including EPA, DOT and Coast Guard jurisdictional locations. The initial plans were developed to comply with statutory requirements and were later modified to comply with EPA's late release of regulations under 40 CFR Part 112. Work required defining worst case scenarios, completing spill trajectory planning, and securing response resources necessary to respond to various spill scenarios. Received reward and recognition for effective implementation of this program under tight time constraints. Also developed emergency training and drill programs and coordinated annual tabletop drills to comply with the OPA90 requirements.

COMPLIANCE AND RISK MANAGEMENT

Project Director
Standard Operating Procedures | BP, Buckeye, and Tesoro

Project director for program preparing operational procedures covering a range of tasks at terminal and pipeline facilities. Covered tasks included 80+ operations activities such as pipeline receipts, tank truck loading, additive receipts, injector calibrations, meter proving, and others. This work included field review of procedures with client subject matter experts (SMEs), technical writing of the plans, and verification of procedure adequacy with client SMEs.

Project Manager
Tank Overfill Protection | BP | US Pipelines & Logistics

What Project manager for a multi-year project assisting a major oil company to evaluate, design, and implement a comprehensive program for eliminating overfills of above ground tanks at crude oil and refined product terminals. Work included comprehensive review of industry standards in U.S. and U.K., preparation of a Tank Overfill Prevention corporate policy document, preparation of a corporate level standard operating procedure which was used as a template for all facility specific SOPs, evaluation of tank gauging and monitoring equipment alternatives, and preparation of training materials.

Project Manager
Environmental Management Plans | BP

Developed the format and served as project manager for the preparation of comprehensive compliance management plans for 23 refined products terminals. The plans evaluated periodic and event-based requirements contained in applicable local, state and federal regulations, permits and other compliance plans and documents. The information was presented in a clear format for implementation by the terminal operations teams.

Senior Advisor
Railroad Leased Properties Assessment | Union Pacific Railroad

Senior Advisor for a project which assessed risk associated with hundreds of leased properties owned by the railroad. Risk assessment took into account factors including property use, financial strength of lessee, physical characteristics of the site, surrounding land use, state regulatory environment, and lease terms. Resultant categorization of site risk allowed the client to prioritize spending to reduce risk exposure.

Senior Advisor
Gray Oak Pipeline | Phillips 66

Provided senior consulting support on Gray Oak Pipeline including project staffing & execution, project deliverables tracking, weekly reporting, and strategic support with the project leadership team. For this project, Wood provided permitting support for the entire project including wetland delineations, threatened and endangered species surveys, cultural resource surveys, GIS analyses, Section 404 Nationwide permits with the US Army Corps of Engineers (USACE). The Gray Oak Pipeline is an approximate 800-mile crude oil pipeline for the southern New Mexico border to southeast of Houston with a branch to Corpus Christi. Most of the pipeline consisted of 30-inch coated steel pipe with smaller diameter pipe used in several areas. In addition to the pipeline, there are seven large facilities with storage tanks, and a number of smaller facilities associated with pump stations.

APPENDIX B

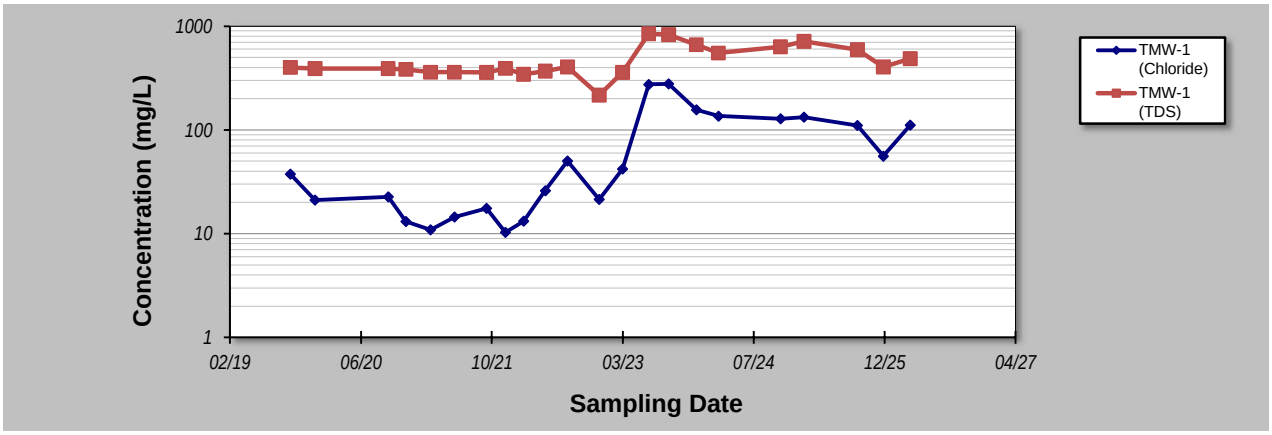
Mann-Kendall Statistical Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID:	TMW-1 (Chloride)	TMW-1 (TDS)					
Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)					
1	23-Sep-19	37.4	400				
2	26-Dec-19	21.1	390				
3	30-Sep-20	22.6	390				
4	7-Dec-20	13.1	383				
5	11-Mar-21	10.9	360				
6	10-Jun-21	14.5	360				
7	11-Oct-21	17.5	358				
8	22-Dec-21	10.3	391				
9	1-Mar-22	13.2	343				
10	23-May-22	26	369				
11	16-Aug-22	50.3	404				
12	15-Dec-22	21.4	216				
13	14-Mar-23	41.9	358				
14	22-Jun-23	275	845				
15	6-Sep-23	277	830				
16	21-Dec-23	156	662				
17	14-Mar-24	136	551				
18	6-Nov-24	128	632				
19	4-Feb-25	133	714				
20	27-Aug-25	110	593				
21	4-Dec-25	56	405				
22	17-Mar-26	111	487				
23							
24							
25							
Coefficient of Variation:		1.06	0.35				
Mann-Kendall Statistic (S):		101	62				
Confidence Factor:		99.8%	95.8%				
Concentration Trend:		Increasing	Increasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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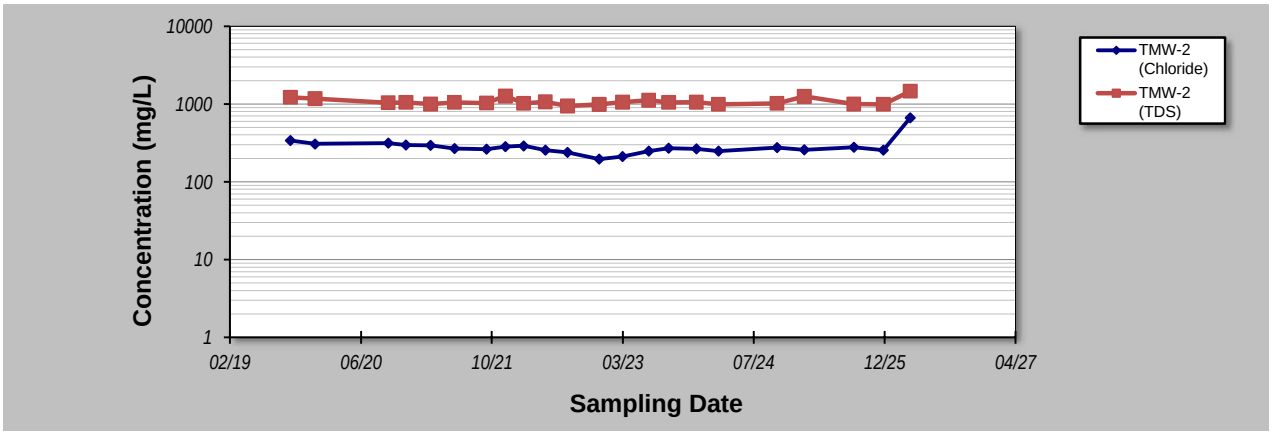
GSI Environmental Inc., www.gsi-net.com

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID:	TMW-2 (Chloride)	TMW-2 (TDS)					
Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)					
1	23-Sep-19	338	1220				
2	26-Dec-19	307	1170				
3	30-Sep-20	314	1040				
4	7-Dec-20	298	1050				
5	11-Mar-21	293	1000				
6	10-Jun-21	267	1050				
7	11-Oct-21	263	1030				
8	22-Dec-21	284	1270				
9	1-Mar-22	290	1020				
10	23-May-22	256	1070				
11	16-Aug-22	239	940				
12	15-Dec-22	195	985				
13	14-Mar-23	211	1060				
14	22-Jun-23	248	1120				
15	6-Sep-23	270	1050				
16	21-Dec-23	264.5	1055				
17	14-Mar-24	249	992				
18	24-Oct-24	276	1020				
19	5-Feb-25	258	1250				
20	13-Aug-25	279	996				
21	4-Dec-25	256	991				
22	17-Mar-26	662	1460				
23							
24							
25							
Coefficient of Variation:		0.31	0.11				
Mann-Kendall Statistic (S):		-68	-25				
Confidence Factor:		97.1%	74.8%				
Concentration Trend:		Decreasing	Stable				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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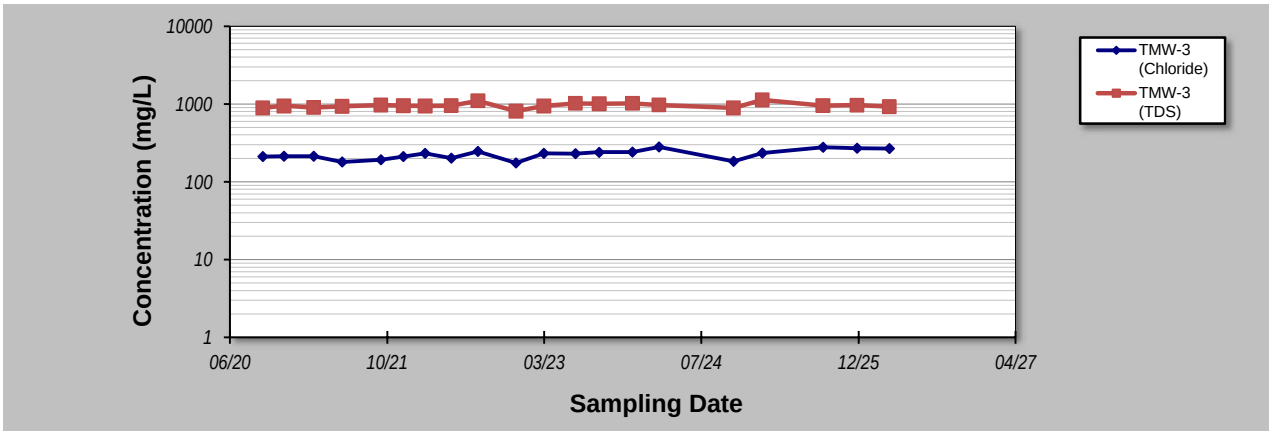
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID:	TMW-3 (Chloride)	TMW-3 (TDS)					
Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)					
1	30-Sep-20	212	891				
2	7-Dec-20	214	948				
3	11-Mar-21	213	900				
4	10-Jun-21	180	934				
5	11-Oct-21	192	967				
6	22-Dec-21	211	949				
7	1-Mar-22	233	944				
8	23-May-22	202	955				
9	16-Aug-22	245	1100				
10	15-Dec-22	175	808				
11	14-Mar-23	233	940				
12	22-Jun-23	229	1020				
13	6-Sep-23	240	1010				
14	21-Dec-23	242	1020				
15	14-Mar-24	281	973				
16	6-Nov-24	183	889				
17	6-Feb-25	234	1130				
18	18-Aug-25	279	953				
19	4-Dec-25	269	966				
20	17-Mar-26	268	925				
21							
22							
23							
24							
25							
Coefficient of Variation:		0.14	0.07				
Mann-Kendall Statistic (S):		83	41				
Confidence Factor:		99.7%	90.2%				
Concentration Trend:		Increasing	Prob. Increasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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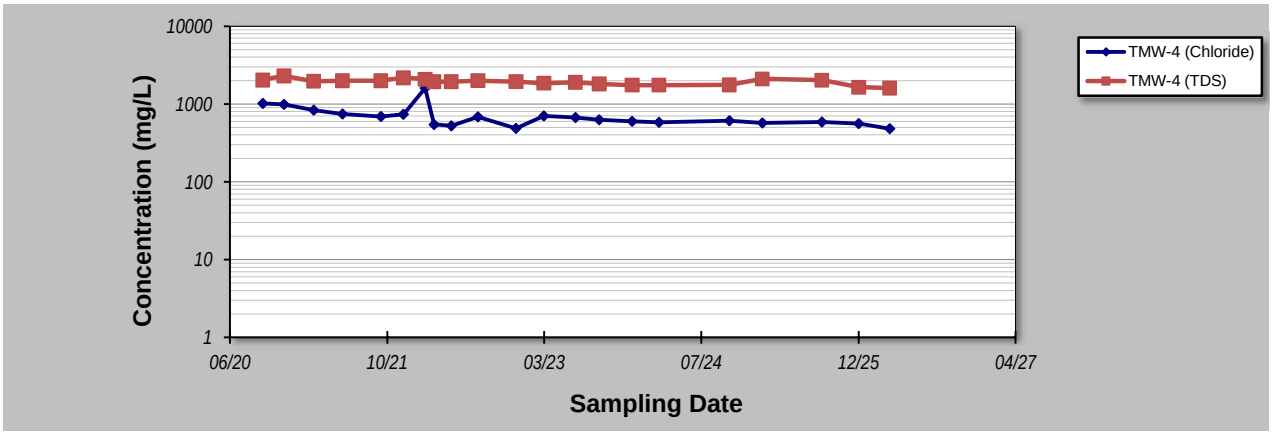
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID:	TMW-4 (Chloride)	TMW-4 (TDS)					
Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	30-Sep-20	1020	2040					
2	7-Dec-20	987	2300					
3	11-Mar-21	834	1960					
4	11-Jun-21	745	1990					
5	11-Oct-21	689	1990					
6	22-Dec-21	735	2180					
7	1-Mar-22	1610	2080					
8	29-Mar-22	547	1930					
9	23-May-22	522	1930					
10	16-Aug-22	684	2000					
11	15-Dec-22	486	1940					
12	14-Mar-23	703	1850					
13	22-Jun-23	673	1900					
14	6-Sep-23	625	1810					
15	20-Dec-23	598	1750					
16	14-Mar-24	580	1750					
17	24-Oct-24	612	1760					
18	6-Feb-25	569	2100					
19	14-Aug-25	585	2020					
20	10-Dec-25	559	1640					
21	18-Mar-26	480	1610					
22								
23								
24								
25								
Coefficient of Variation:		0.36	0.09					
Mann-Kendall Statistic (S):		-126	-109					
Confidence Factor:		>99.9%	>99.9%					
Concentration Trend:		Decreasing	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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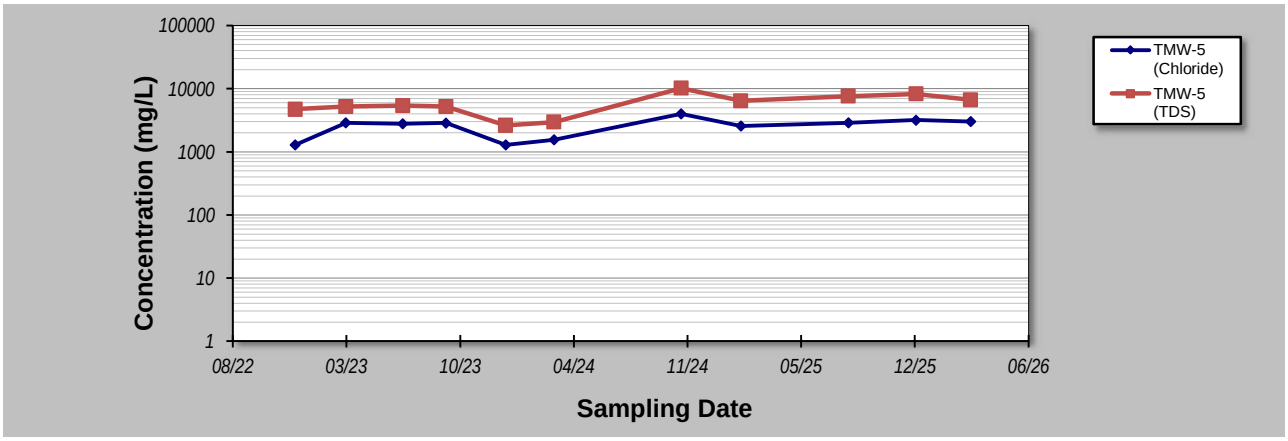
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-5 (Chloride) | TMW-5 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	15-Dec-22	1290	4735					
2	14-Mar-23	2890	5200					
3	22-Jun-23	2790	5380					
4	6-Sep-23	2865	5220					
5	20-Dec-23	1292.5	2630					
6	14-Mar-24	1546	2958.666667					
7	24-Oct-24	3990	10200					
8	6-Feb-25	2565	6430					
9	14-Aug-25	2890	7610					
10	11-Dec-25	3180	8250					
11	17-Mar-26	3020	6640					
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.33	0.38					
Mann-Kendall Statistic (S):		22	25					
Confidence Factor:		94.9%	97.0%					
Concentration Trend:		Prob. Increasing	Increasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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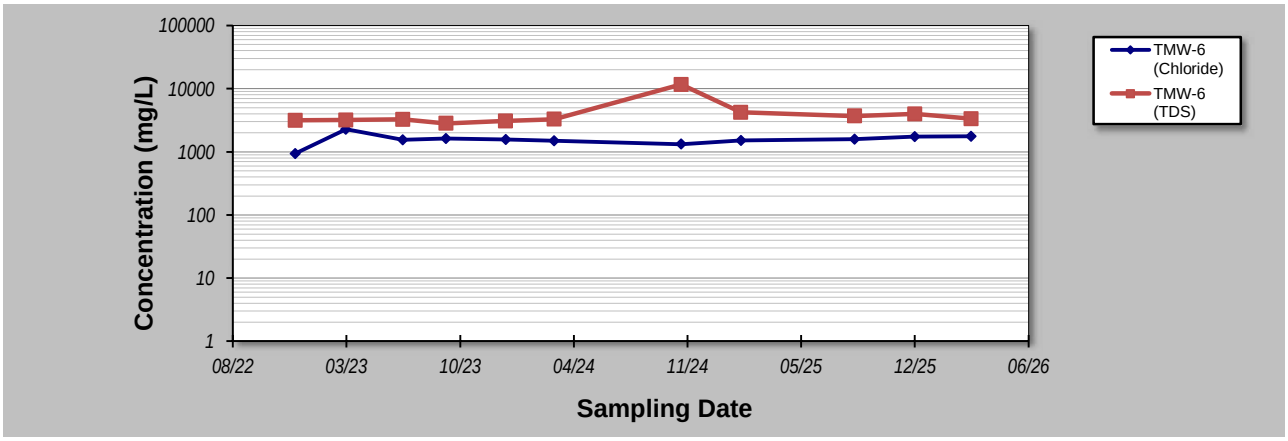
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-6 (Chloride) | TMW-6 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	15-Dec-22	941	3160					
2	14-Mar-23	2270	3200					
3	22-Jun-23	1550	3260					
4	6-Sep-23	1630	2820					
5	20-Dec-23	1570	3070					
6	14-Mar-24	1500	3280					
7	24-Oct-24	1330	11700					
8	6-Feb-25	1520	4220					
9	25-Aug-25	1590	3690					
10	9-Dec-25	1750	3980					
11	18-Mar-26	1760	3340					
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.20	0.61					
Mann-Kendall Statistic (S):		13	25					
Confidence Factor:		82.1%	97.0%					
Concentration Trend:		No Trend	Increasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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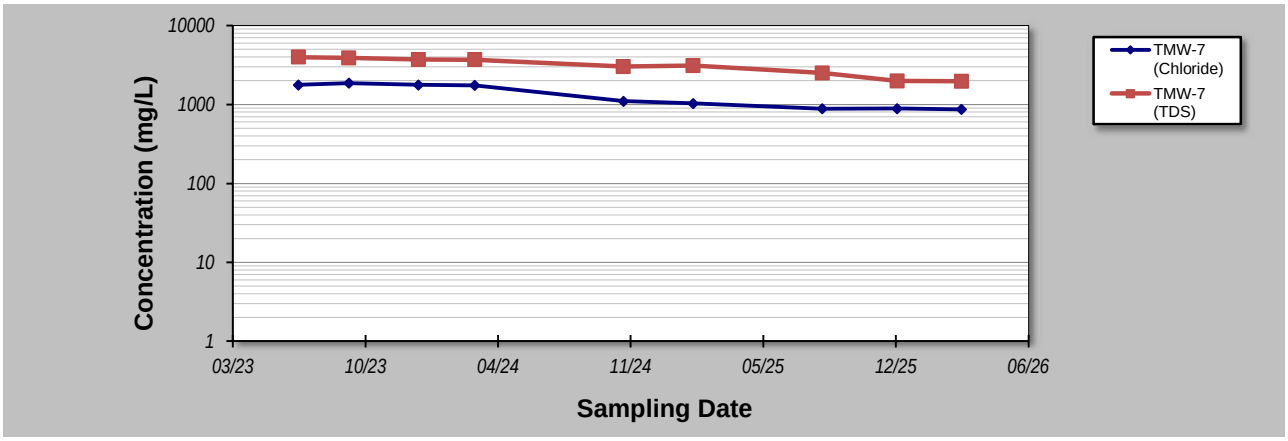
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-7 (Chloride) | TMW-7 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	22-Jun-23	1770	3980					
2	6-Sep-23	1870	3880					
3	20-Dec-23	1770	3720					
4	14-Mar-24	1740	3690					
5	24-Oct-24	1100	3020					
6	6-Feb-25	1030	3110					
7	20-Aug-25	880	2500					
8	11-Dec-25	887	1980					
9	18-Mar-26	867	1970					
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.34	0.26					
Mann-Kendall Statistic (S):		-31	-34					
Confidence Factor:		>99.9%	>99.9%					
Concentration Trend:		Decreasing	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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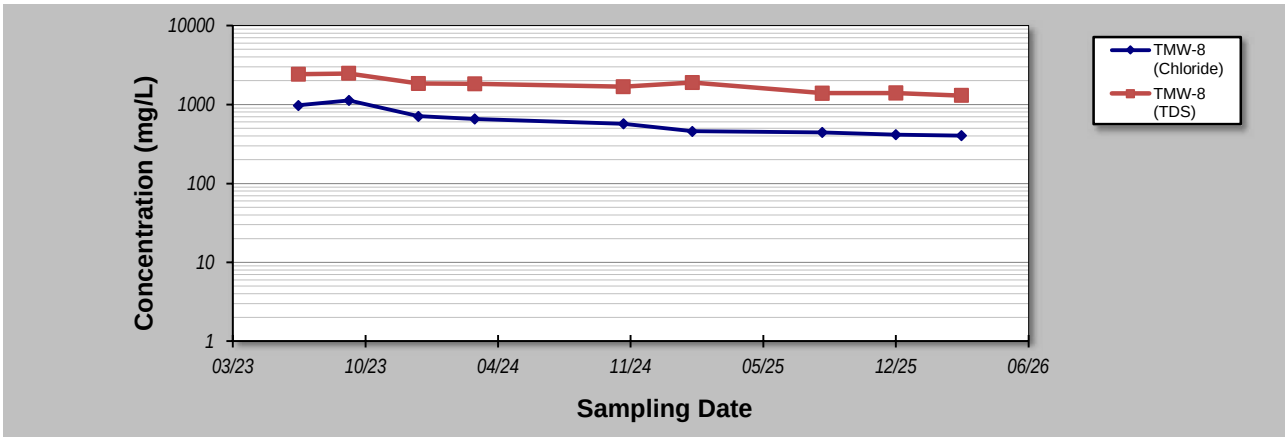
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-8 (Chloride) | TMW-8 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	22-Jun-23	974	2410					
2	6-Sep-23	1130	2470					
3	20-Dec-23	709	1840					
4	14-Mar-24	655	1830					
5	24-Oct-24	570	1680					
6	5-Feb-25	457	1890					
7	20-Aug-25	442	1390					
8	9-Dec-25	414	1400					
9	18-Mar-26	402	1300					
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.41	0.23					
Mann-Kendall Statistic (S):		-34	-26					
Confidence Factor:		>99.9%	99.7%					
Concentration Trend:		Decreasing	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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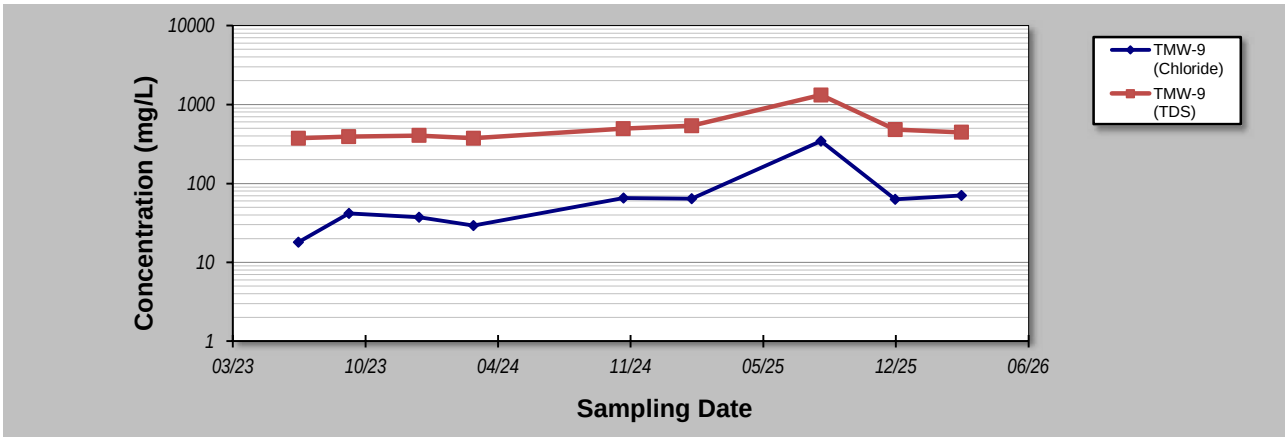
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-9 (Chloride) | TMW-9 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	22-Jun-23	18	373					
2	6-Sep-23	41.8	390					
3	21-Dec-23	37.3	404					
4	12-Mar-24	29.3	373					
5	24-Oct-24	65.5	493					
6	4-Feb-25	64.1	536					
7	18-Aug-25	343	1320					
8	8-Dec-25	63	480					
9	18-Mar-26	70.6	443					
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.23	0.56					
Mann-Kendall Statistic (S):		20	17					
Confidence Factor:		97.8%	95.1%					
Concentration Trend:		Increasing	Increasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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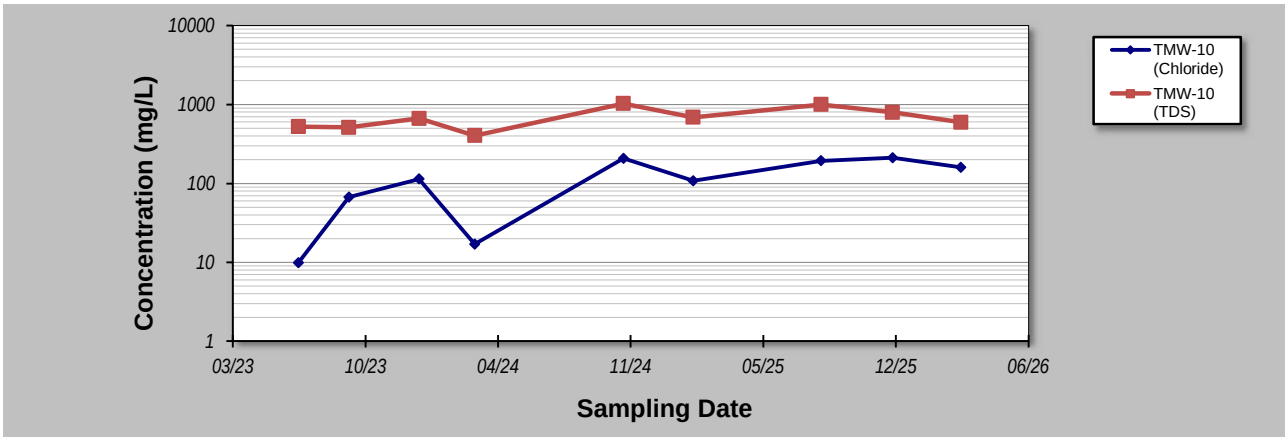
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-10 (Chloride) | TMW-10 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	22-Jun-23	9.89	525					
2	6-Sep-23	67	514					
3	21-Dec-23	114	666					
4	14-Mar-24	17	405					
5	24-Oct-24	208	1030					
6	6-Feb-25	108	688					
7	18-Aug-25	194	1000					
8	4-Dec-25	212	797					
9	17-Mar-26	160	596					
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.65	0.31					
Mann-Kendall Statistic (S):		20	10					
Confidence Factor:		97.8%	82.1%					
Concentration Trend:		Increasing	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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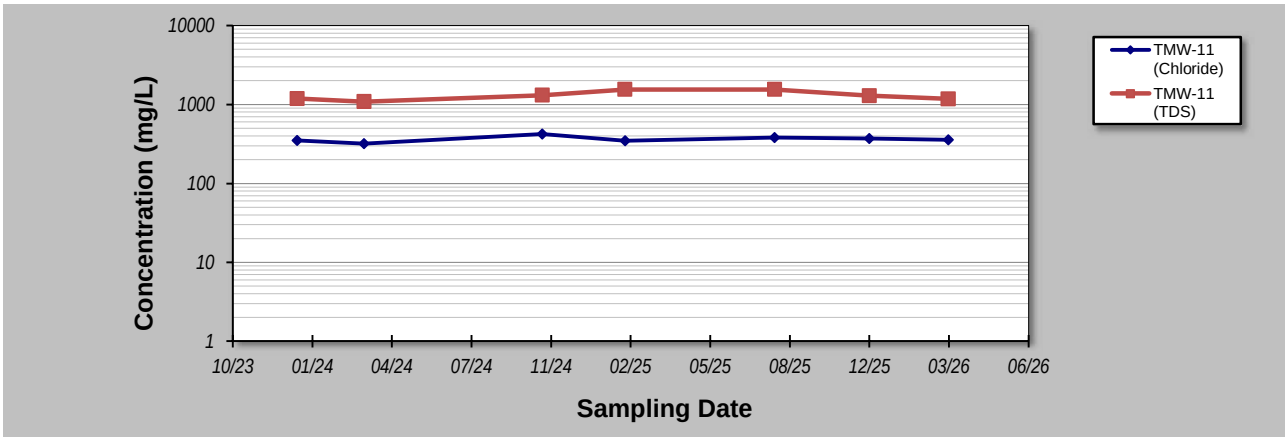
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-11 (Chloride) | TMW-11 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	21-Dec-23	350	1190					
2	14-Mar-24	318	1090					
3	24-Oct-24	423	1310					
4	5-Feb-25	347	1550					
5	12-Aug-25	380	1550					
6	9-Dec-25	369.5	1290					
7	18-Mar-26	356	1180					
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.09	0.14					
Mann-Kendall Statistic (S):		3	2					
Confidence Factor:		61.4%	55.7%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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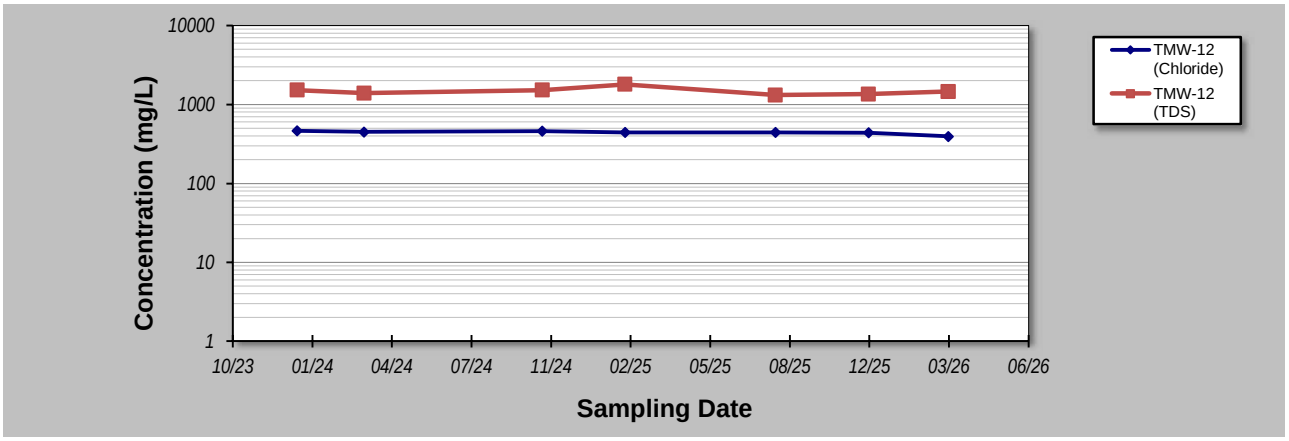
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-12 (Chloride) | TMW-12 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	21-Dec-23	463	1520					
2	14-Mar-24	448	1390					
3	24-Oct-24	458	1520					
4	5-Feb-25	443	1800					
5	13-Aug-25	443	1320					
6	8-Dec-25	439	1350					
7	18-Mar-26	394	1460					
8								
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15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.05	0.11					
Mann-Kendall Statistic (S):		-18	-4					
Confidence Factor:		99.7%	66.7%					
Concentration Trend:		Decreasing	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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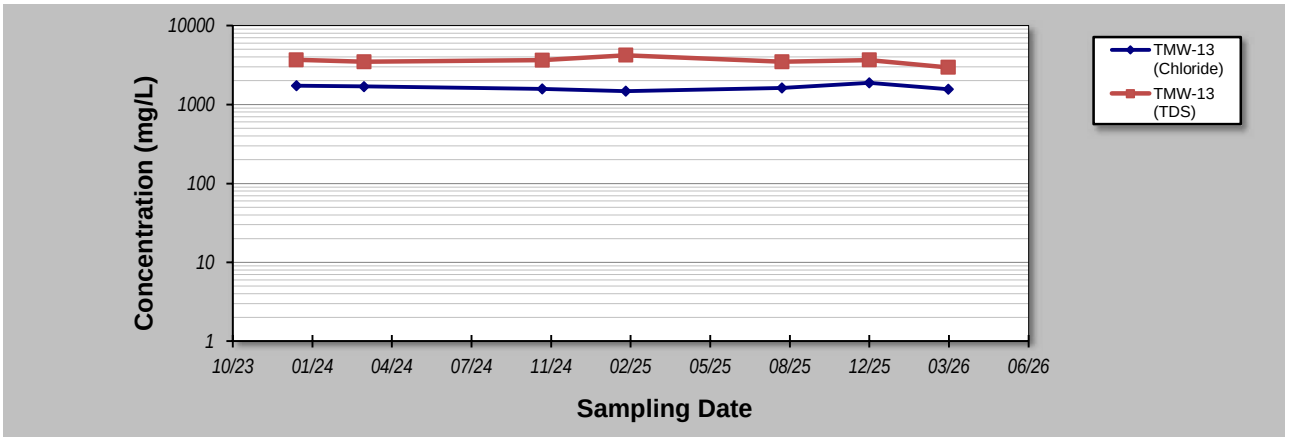
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-13 (Chloride) | TMW-13 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	1730	3680					
2	14-Mar-24	1690	3480					
3	24-Oct-24	1580	3650					
4	6-Feb-25	1480	4210					
5	21-Aug-25	1620	3480					
6	9-Dec-25	1890	3660					
7	18-Mar-26	1560	2950					
8								
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13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.08	0.10					
Mann-Kendall Statistic (S):		-5	-6					
Confidence Factor:		71.9%	76.4%					
Concentration Trend:		Stable	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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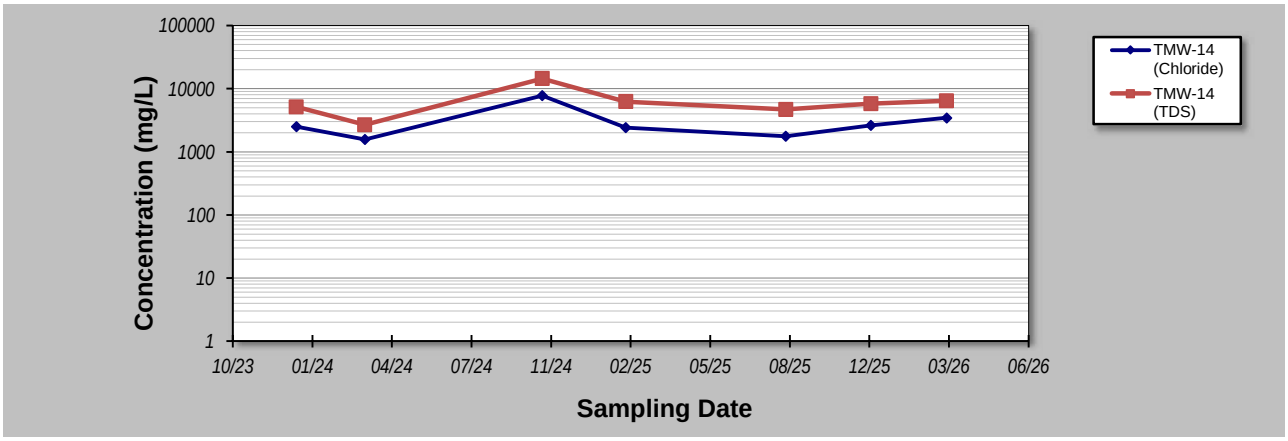
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-14 (Chloride) | TMW-14 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	2500	5140					
2	15-Mar-24	1570	2675					
3	24-Oct-24	7790	14500					
4	6-Feb-25	2410	6240					
5	26-Aug-25	1770	4680					
6	11-Dec-25	2630	5770					
7	16-Mar-26	3450	6450					
8								
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14								
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18								
19								
20								
Coefficient of Variation:		0.67	0.58					
Mann-Kendall Statistic (S):		5	5					
Confidence Factor:		71.9%	71.9%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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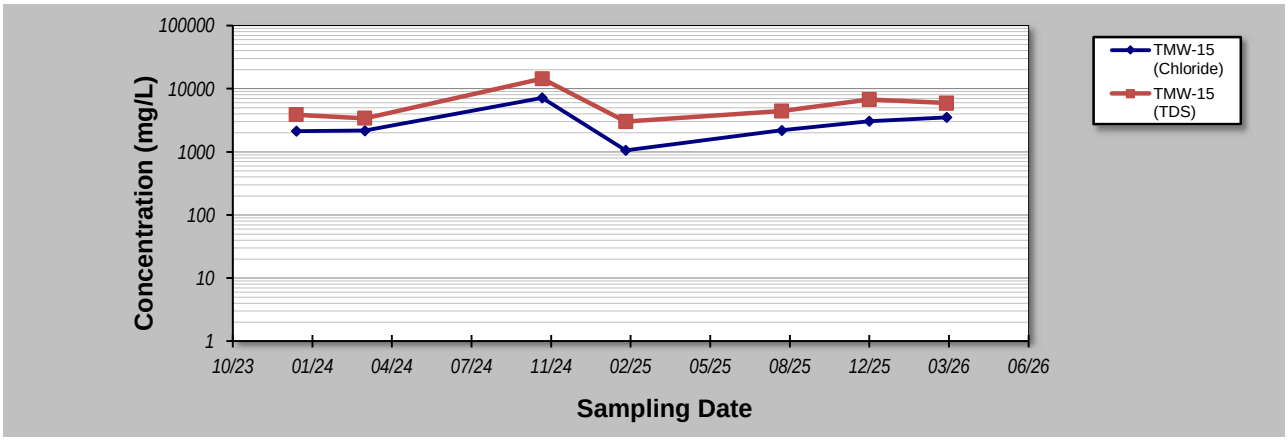
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-15 (Chloride) | TMW-15 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	2120	3870					
2	15-Mar-24	2160	3400					
3	24-Oct-24	7160	14400					
4	6-Feb-25	1060	3010					
5	21-Aug-25	2190	4430					
6	9-Dec-25	3060	6720					
7	16-Mar-26	3510	5900					
8								
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11								
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13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.65	0.66					
Mann-Kendall Statistic (S):		9	5					
Confidence Factor:		88.1%	71.9%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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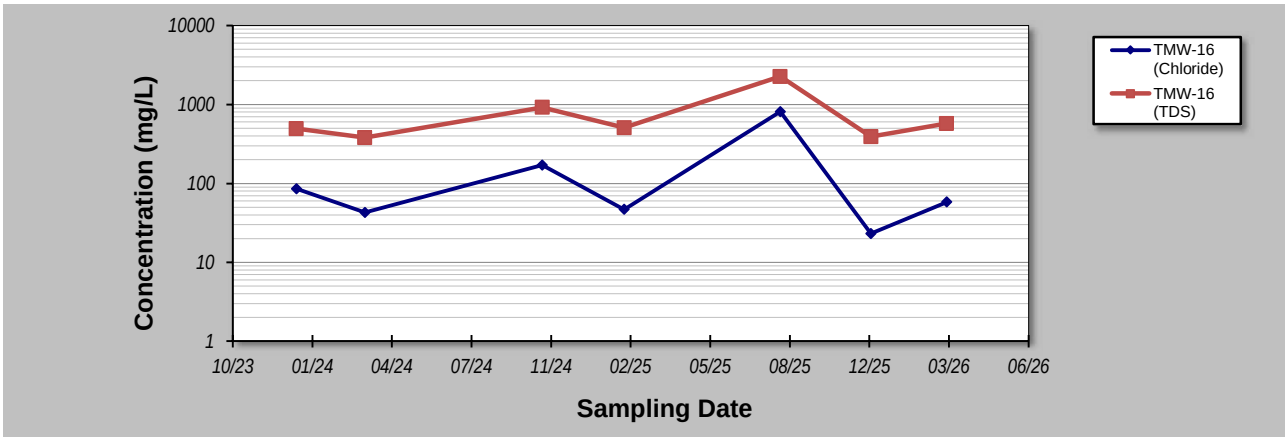
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-16 (Chloride) | TMW-16 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	85.5	495					
2	15-Mar-24	43	380					
3	24-Oct-24	171	919					
4	4-Feb-25	46.9	507					
5	19-Aug-25	811	2260					
6	11-Dec-25	23.1	391					
7	16-Mar-26	58.1	574					
8								
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14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.60	0.85					
Mann-Kendall Statistic (S):		-1	5					
Confidence Factor:		50.0%	71.9%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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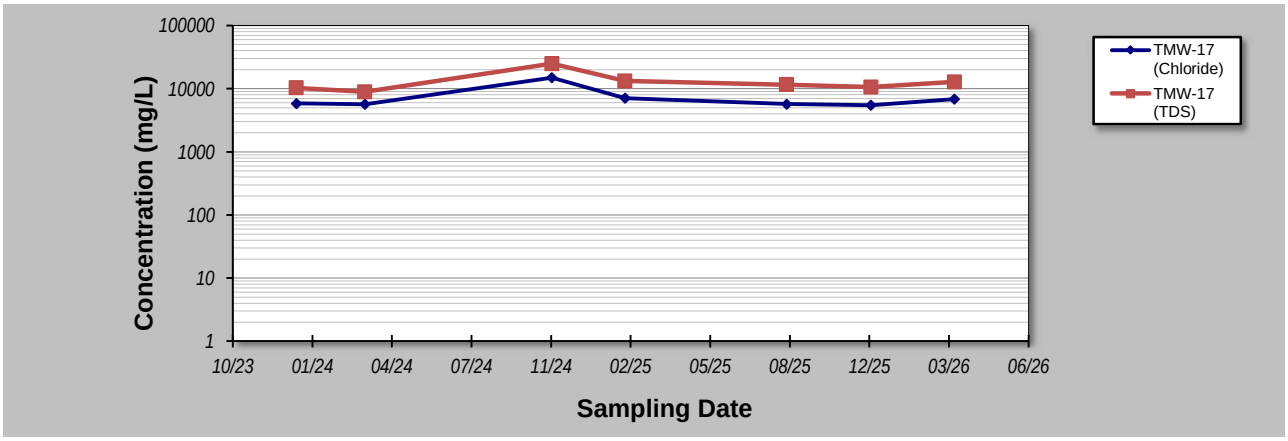
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-17 (Chloride) | TMW-17 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)	
1	20-Dec-23	5840	10300
2	15-Mar-24	5680	8930
3	5-Nov-24	14900	24900
4	5-Feb-25	7050	13300
5	27-Aug-25	5700	11600
6	11-Dec-25	5500	10600
7	26-Mar-26	6840	12800
8			
9			
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12			
13			
14			
15			
16			
17			
18			
19			
20			
Coefficient of Variation:		0.46	0.41
Mann-Kendall Statistic (S):		-3	3
Confidence Factor:		61.4%	61.4%
Concentration Trend:		Stable	No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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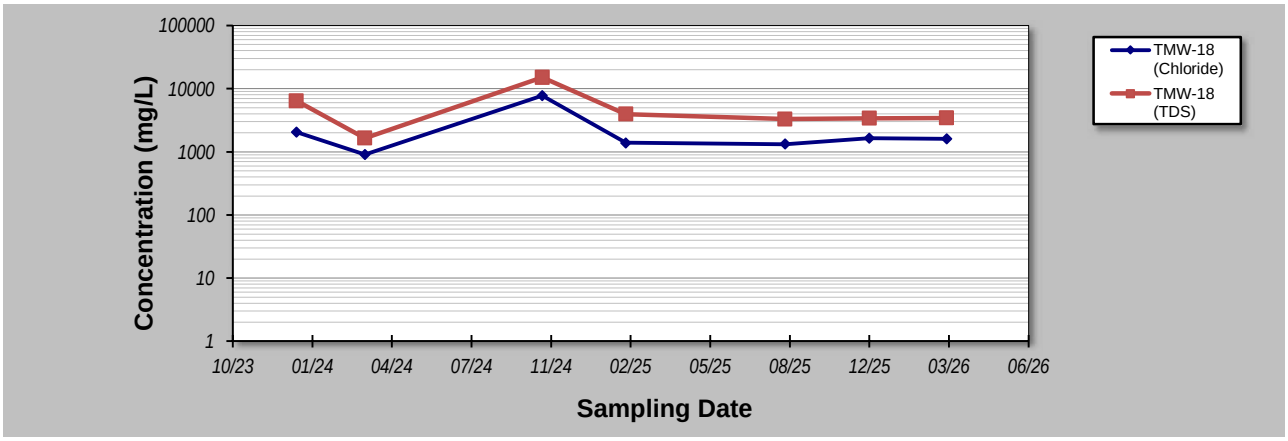
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-18 (Chloride) | TMW-18 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	2050	6430					
2	15-Mar-24	908	1650					
3	24-Oct-24	7820	15200					
4	6-Feb-25	1390	3960					
5	25-Aug-25	1330	3310					
6	9-Dec-25	1640	3400					
7	16-Mar-26	1600	3440					
8								
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15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.01	0.86					
Mann-Kendall Statistic (S):		-1	-3					
Confidence Factor:		50.0%	61.4%					
Concentration Trend:		No Trend	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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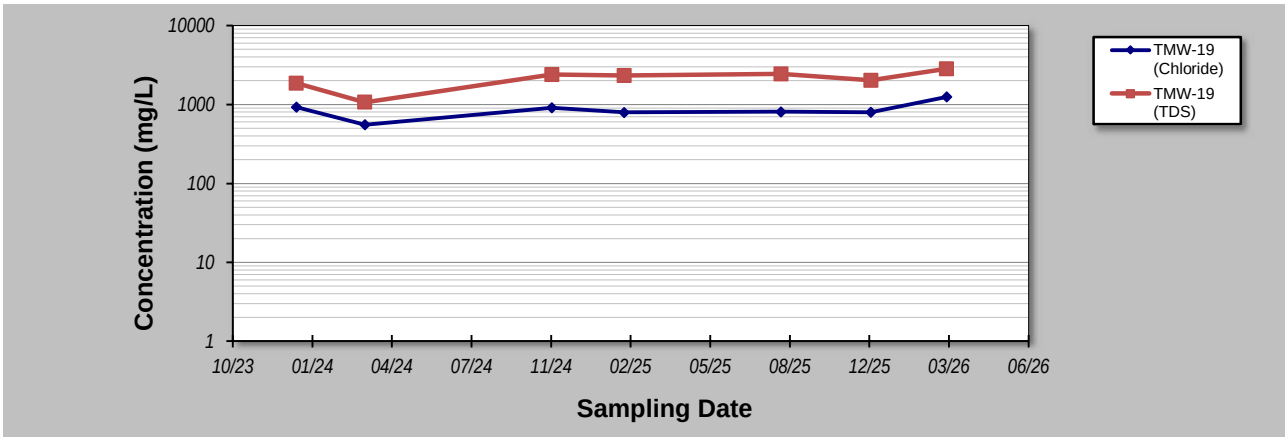
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-19 (Chloride) | TMW-19 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	927	1860					
2	15-Mar-24	553	1070					
3	5-Nov-24	907	2390					
4	4-Feb-25	792	2330					
5	20-Aug-25	808	2440					
6	11-Dec-25	799	2020					
7	16-Mar-26	1250	2840					
8								
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12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.24	0.26					
Mann-Kendall Statistic (S):		3	11					
Confidence Factor:		61.4%	93.2%					
Concentration Trend:		No Trend	Prob. Increasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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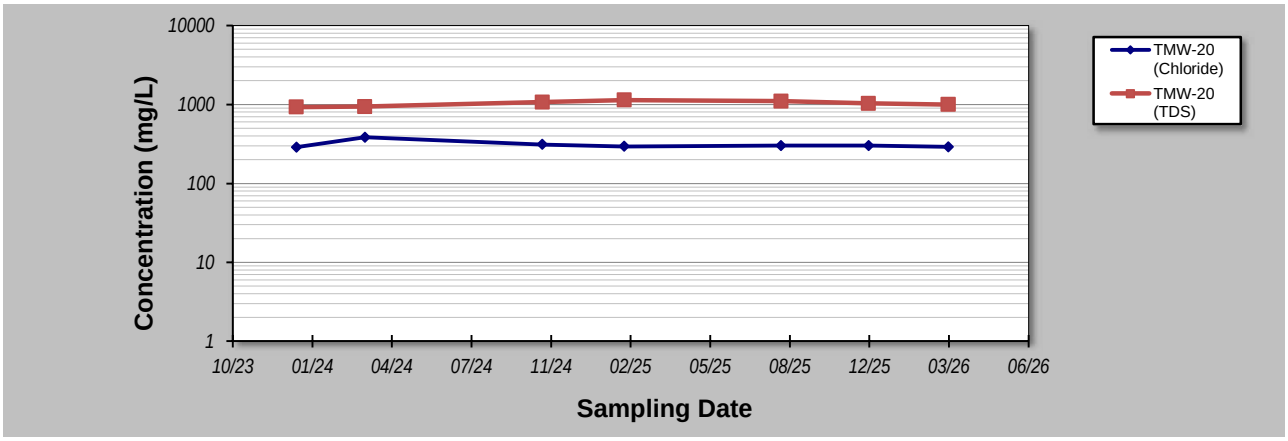
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-20 (Chloride) | TMW-20 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	287	927					
2	15-Mar-24	385	937					
3	24-Oct-24	312	1070					
4	4-Feb-25	295	1140					
5	20-Aug-25	302	1100					
6	8-Dec-25	302	1030					
7	18-Mar-26	292	1000					
8								
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12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.11	0.08					
Mann-Kendall Statistic (S):		-4	5					
Confidence Factor:		66.7%	71.9%					
Concentration Trend:		Stable	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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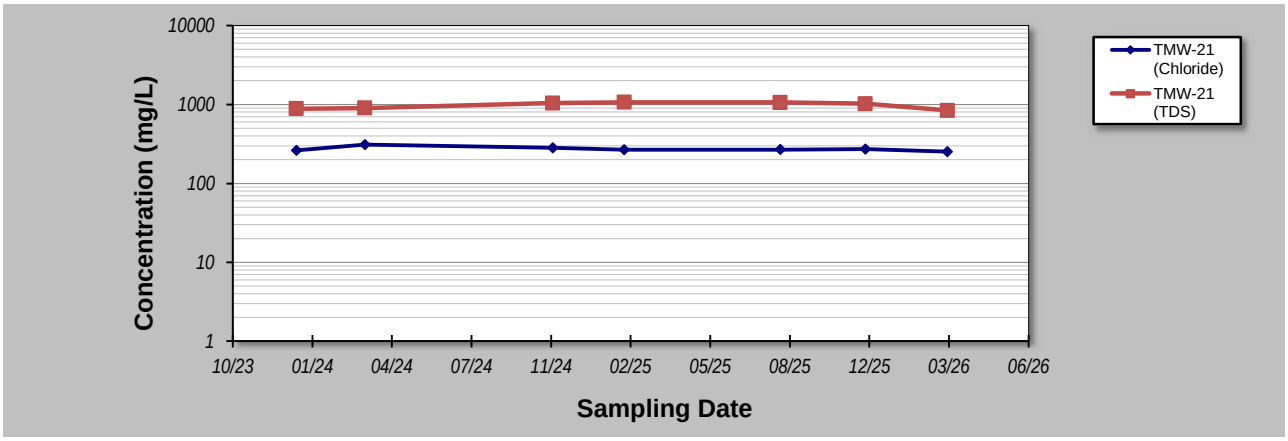
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad
Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-21 (Chloride) | TMW-21 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	262	885					
2	15-Mar-24	310	902					
3	6-Nov-24	284	1040					
4	4-Feb-25	268	1070					
5	19-Aug-25	269	1060					
6	4-Dec-25	273	1020					
7	17-Mar-26	253	843					
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.07	0.10					
Mann-Kendall Statistic (S):		-5	1					
Confidence Factor:		71.9%	50.0%					
Concentration Trend:		Stable	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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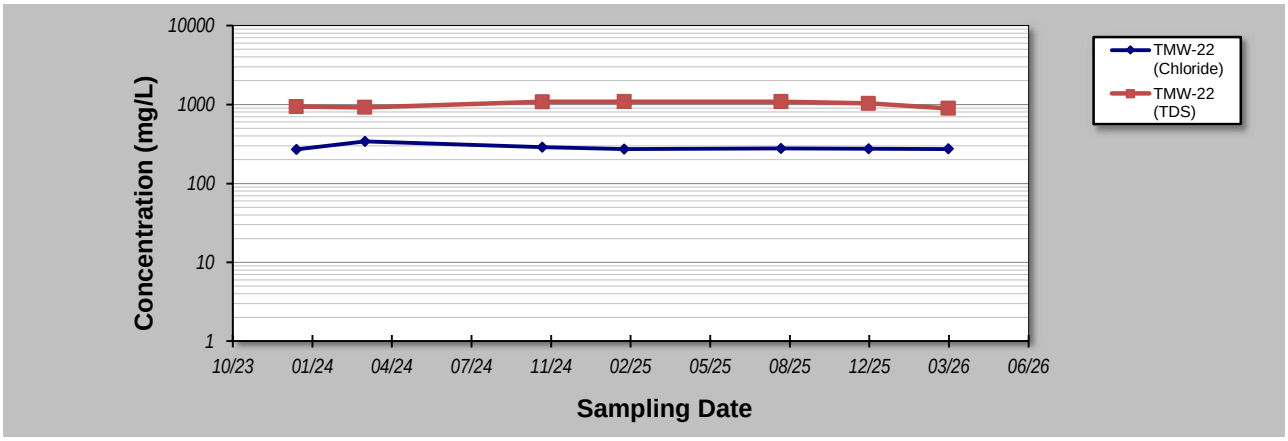
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-22 (Chloride) | TMW-22 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	270	939					
2	15-Mar-24	342	918					
3	24-Oct-24	289	1080					
4	4-Feb-25	272	1090					
5	20-Aug-25	278	1090					
6	8-Dec-25	276	1030					
7	18-Mar-26	274	893					
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.09	0.09					
Mann-Kendall Statistic (S):		-3	0					
Confidence Factor:		61.4%	37.9%					
Concentration Trend:		Stable	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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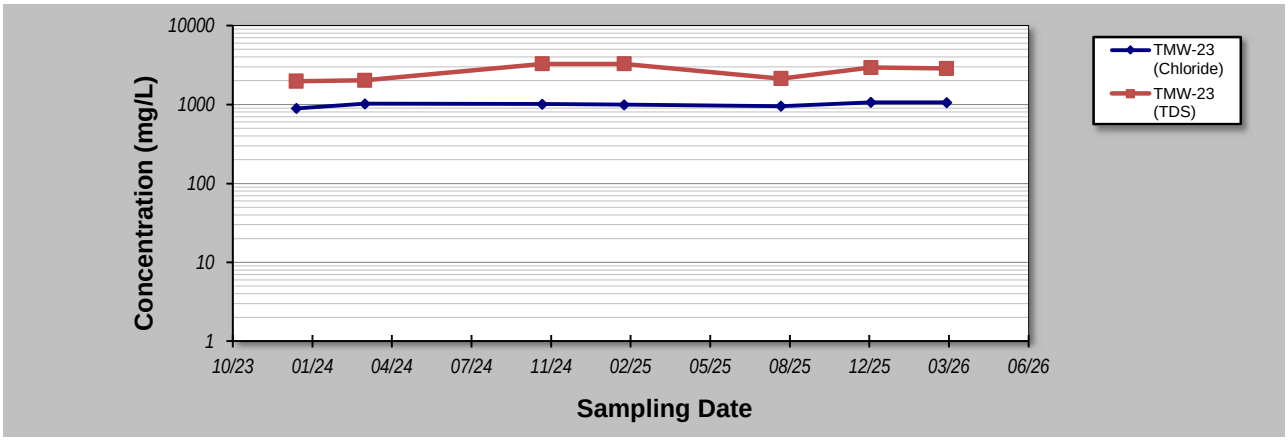
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-23 (Chloride) | TMW-23 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	895	1980					
2	15-Mar-24	1020	2020					
3	24-Oct-24	1010	3270					
4	4-Feb-25	993	3280					
5	20-Aug-25	951	2130					
6	11-Dec-25	1070	2930					
7	16-Mar-26	1060	2860					
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.06	0.22					
Mann-Kendall Statistic (S):		7	7					
Confidence Factor:		80.9%	80.9%					
Concentration Trend:		No Trend	No Trend					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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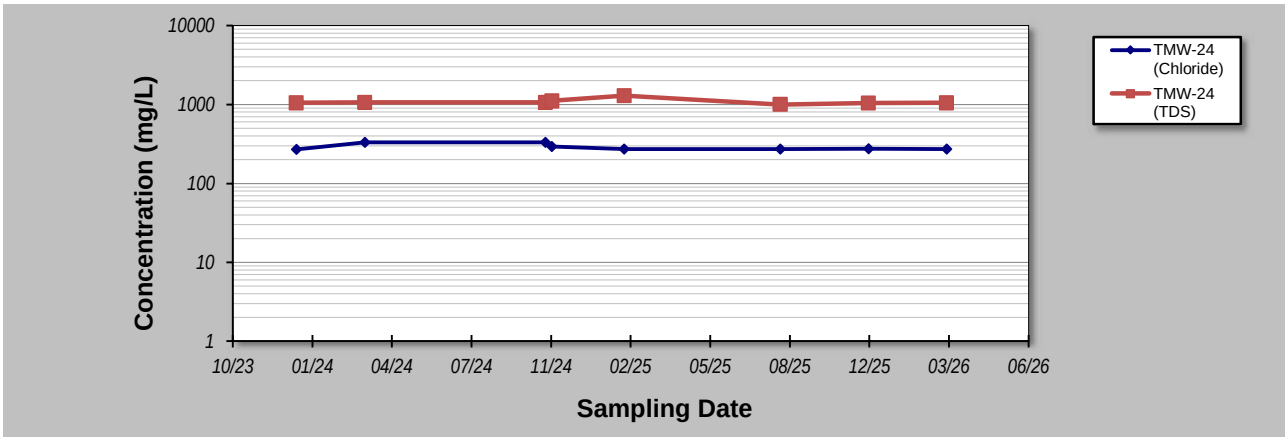
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID: TMW-24 (Chloride) | TMW-24 (TDS)

Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)						
1	20-Dec-23	271	1050					
2	15-Mar-24	330	1060					
3	28-Oct-24	330	1060					
4	5-Nov-24	293	1110					
5	4-Feb-25	272	1290					
6	19-Aug-25	273	999					
7	8-Dec-25	276	1045					
8	16-Mar-26	272	1050					
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.09	0.08					
Mann-Kendall Statistic (S):		-6	-2					
Confidence Factor:		72.6%	54.8%					
Concentration Trend:		Stable	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

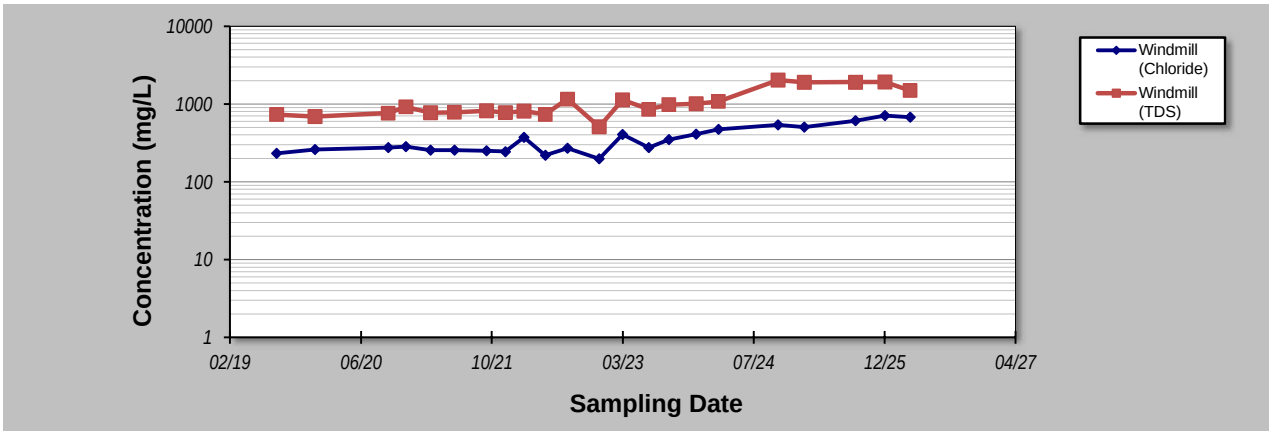
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-May-26
Facility Name: Apache - EBDU
Conducted By: Ali Rahmaninezhad

Job ID: AR25P108
Constituent: Chloride and TDS
Concentration Units: mg/L

Sampling Point ID:	Windmill (Chloride)	Windmill (TDS)					
Sampling Event	Sampling Date	CHLORIDE AND TDS CONCENTRATION (mg/L)					
1	1-Aug-19	232	732				
2	26-Dec-19	259	688				
3	30-Sep-20	275	762				
4	7-Dec-20	282.5	919				
5	11-Mar-21	255.5	771.5				
6	10-Jun-21	255.5	781				
7	11-Oct-21	250.5	815				
8	22-Dec-21	244.5	773.5				
9	3-Mar-22	373.5	807.5				
10	23-May-22	218.5	733.5				
11	16-Aug-22	269.5	1155				
12	15-Dec-22	198	508				
13	14-Mar-23	407	1130				
14	22-Jun-23	274.5	853.5				
15	7-Sep-23	350	981				
16	20-Dec-23	409	1010				
17	14-Mar-24	471	1080				
18	28-Oct-24	540	2030				
19	5-Feb-25	504.5	1900				
20	20-Aug-25	612	1910				
21	10-Dec-25	708.5	1925				
22	16-Mar-26	675.5	1490				
23							
24							
25							
Coefficient of Variation:		0.42	0.43				
Mann-Kendall Statistic (S):		134	143				
Confidence Factor:		>99.9%	>99.9%				
Concentration Trend:		Increasing	Increasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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APPENDIX C

Technical Evaluation of Chloride and Attenuation Trends

EXHIBIT B-2

Technical Evaluation of Chloride Impacts and Attenuation Trends in Groundwater

East Blinebry Drinkard Unit (EBDU) #37 Lea County, New Mexico

May 26, 2026

Ali Rahmaninezhad, Ph.D., P.E.
Senior Staff Environmental Engineer
Ali.rahmaninezhad@terracon.com

Marwan M. Salameh, Ph.D. P.E.
Senior Environmental Engineer
Marwan.Salameh@terracon.com



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1. Evaluation of Representative Background Chloride Concentrations

Terracon Consultants, Inc. (Terracon) identified TMW-11, TMW-21, TMW-22, and TMW-28 as monitoring wells representative of background groundwater conditions at the site[1]. Review of the groundwater chemistry for these wells, as depicted on radial plots, indicates generally consistent water-quality patterns among the selected background wells. Therefore, the chloride data from these wells were used to evaluate a representative site-specific background chloride concentration.

Statistical evaluation of the available chloride data from TMW-11, TMW-21, TMW-22, and TMW-28 yielded an arithmetic mean of approximately 308 mg/L and a geometric mean of approximately 305 mg/L. These values are generally consistent with the site groundwater/background chloride concentration of 313 mg/L previously reported by Terracon [1]. For ease of subsequent screening-level evaluation, a chloride concentration of 300 mg/L was selected as the representative site-specific background/screening value. This value is not intended to represent the lowest chloride concentration at the site; rather, it provides an approximate baseline for evaluating potential release-related chloride increases in groundwater. Supporting calculations are included in Attachment A.

2. Soil Chloride Mass Evaluation and Estimated Produced-Water Source Concentrations

Based on the soil chloride data collected from the spill area between 2019 and 2020, including the SP soil borings, a screening-level soil chloride mass evaluation was performed to estimate the chloride mass associated with the 2019 produced water (PW) release. The release footprint, represented by the extent of the original excavation area shown in Attachment B, was divided into nine evaluation areas based on the spatial distribution of the available soil boring data. Within each area, the affected soil profile was subdivided into representative depth intervals, and chloride concentrations were assigned to each interval based on the available analytical results. Chloride mass was then estimated using the affected soil volume, assumed soil bulk density, and assigned soil chloride concentrations. Based on this approach, the total estimated chloride mass within the nine target areas was approximately 133,000 kg. This estimate represents a screening-level evaluation of chloride mass associated with the release area and is subject to uncertainty related to soil heterogeneity, limited depth-specific soil data, assumed vertical extent of impacts, and assumed soil bulk density. Calculation details are provided in Attachment B.

3. Estimated Initial Chloride Concentrations in Groundwater Following the Release

Chloride concentrations in groundwater shortly after the release were estimated using trend data from TMW-7 and TMW-8, which are located within the reported spill footprint. A background-corrected first-order attenuation model was applied using the representative site-specific background chloride concentration discussed in Section 1. Because chloride is a conservative constituent, the calculated rate constants are interpreted as apparent attenuation rates reflecting dilution, dispersion, flushing, and source depletion, rather than chemical degradation.

Based on the trend analysis and extrapolation back to the time of the release, the estimated initial groundwater chloride concentrations were approximately 7,000 mg/L at TMW-7 and 4,000 mg/L at TMW-8. To evaluate the reasonableness of these estimated initial concentrations, the model was applied using two approaches: first, using only the available post-release groundwater monitoring data since the installation of the monitoring wells; and second, including the estimated initial chloride concentration as an inferred 2019 data point for each monitoring well. For TMW-7, the apparent attenuation rate constants from the two approaches were generally similar at approximately 0.43 per year (yr^{-1}) using the available monitoring data and 0.39 yr^{-1} when the inferred initial concentration was included. The corresponding half-lives were approximately 1.6 and 1.8 years, respectively.

---

[1] *Field Activity Report, East Blinebry Drinkard Unit (EBDU) #37, Lea County, New Mexico. Terracon Consultants Inc., November 20, 2025. Project Number: AR25P108*

A similar evaluation was performed for TMW-8. The apparent attenuation rate constant was approximately 0.74 yr^{-1} using only the available monitoring data and approximately 0.56 yr^{-1} when the inferred initial concentration was included. The corresponding half-lives were approximately 0.9 and 1.2 years, respectively. The general consistency between the two model fits for each of the monitoring wells indicates that the estimated initial chloride concentrations are reasonable screening-level values for groundwater conditions shortly after the release.

The same attenuation framework was also applied to TMW-4, located downgradient and southeast of the spill area. Based on the early decreasing chloride trend in TMW-4, the chloride concentration at or shortly after the release is estimated to have been approximately 1,900 mg/L. The apparent attenuation rate estimated for the TMW-4 dataset is approximately 0.64 yr^{-1} for both datasets, which is generally consistent with the rates estimated for TMW-7 and TMW-8. This consistency supports the reasonableness of the screening-level initial chloride estimate for TMW-4 following the 2019 release. Supporting calculations are provided in Attachment C.

4. Groundwater Transport Evaluation and Overall Interpretation

Groundwater transport was evaluated using a screening-level analytical approach that combines estimated groundwater seepage velocity with the background-corrected first-order attenuation model. Average linear groundwater seepage velocity was estimated using hydraulic conductivity, hydraulic gradient, and effective porosity. For this evaluation, a hydraulic gradient of 0.0018 ft/ft and an effective porosity of 0.3 were used. Assuming a hydraulic conductivity range of 1×10^{-6} to 1×10^{-4} meters per second (m/s), representative of silty sand to sandy material, the estimated average linear groundwater velocity ranges from approximately 0.62 to 62 feet per year (ft/yr).

Reported chloride concentrations at TMW-45 in 2025 ranged from approximately 1,370 to 1,720 mg/L, which is substantially greater than the representative background chloride concentration of 300 mg/L. TMW-45 is located approximately 1,705 ft downgradient of TMW-7, which was used as a representative release-area well for this evaluation. Based on the estimated groundwater velocity range, the advective travel time from TMW-7 to TMW-45 is estimated to range from approximately 27 years to more than 2,750 years, depending on the assumed hydraulic conductivity. This travel-time estimate indicates that the chloride concentrations observed at TMW-45 are unlikely to be explained by advective migration from the 2019 release area under the simplified model assumptions.

The attenuation component of the evaluation was also considered using the average apparent first-order attenuation rate constant of 0.59 yr^{-1} derived from TMW-7 and TMW-8 trend data. Based on this attenuation rate and the estimated groundwater velocity range, the characteristic attenuation length, or e-folding distance, ranges from approximately 1.05 ft to 105 ft. This distance represents the travel distance over which the chloride concentration above background is reduced to approximately 37 percent of its initial excess concentration, corresponding to approximately 63 percent reduction in excess chloride.

The distance between TMW-7 and TMW-45 represents approximately 19 to 1,891 characteristic attenuation lengths, based on the assumed hydraulic conductivity range. Therefore, under the assumptions of a one-time release near TMW-7, no continuing vadose-zone source contribution, no additional upgradient or downgradient chloride sources, and attenuation behavior consistent with the TMW-7 and TMW-8 trends, release-related chloride concentrations would be expected to approach the representative background concentration before migrating to TMW-45. Accordingly, the elevated chloride concentrations observed at TMW-45 are not consistent with transport from the 2019 release area alone under this simplified groundwater transport and attenuation model.

Overall, the comparison between calculated transport/attenuation behavior and the measured chloride concentrations at TMW-45 suggests that groundwater conditions at TMW-45 may be influenced by

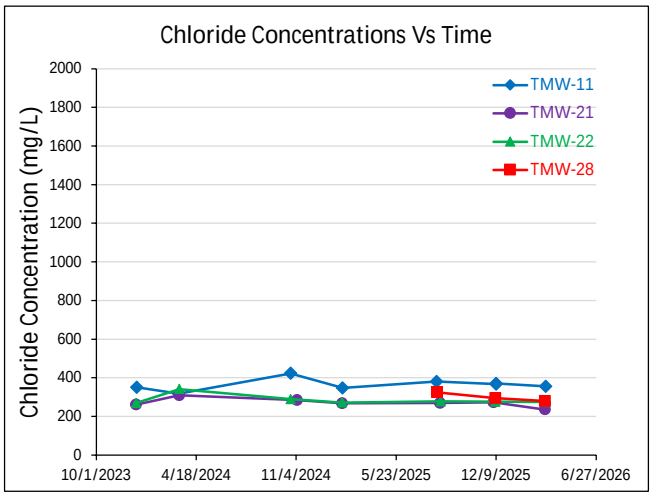
additional chloride sources or pre-existing impacts unrelated to the 2019 release. Calculation details are provided in Attachment D.

Attachment – A

Statistical Evaluation of Representative Background Chloride Concentrations

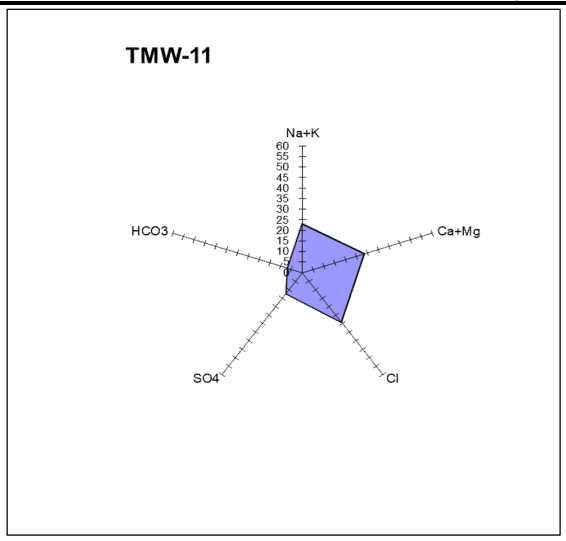
EXHIBIT B-2

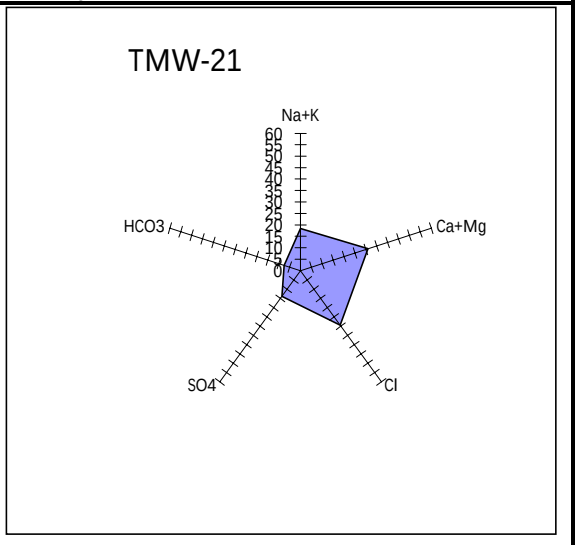
Chloride Concentration (mg/L) changes over time for monitoring wells representing the background concentration							
Date	TMW-11	Date	TMW-21	Date	TMW-22	Date	TMW-28
12/21/2023	350	12/20/2023	262	12/20/2023	270	8/13/2025	325
3/14/2024	318	3/15/2024	310	3/15/2024	342	8/13/2025	325
10/24/2024	423	5/2/2024		10/24/2024	289	12/8/2025	294
2/5/2025	347	11/6/2024	284	2/4/2025	272	3/17/2026	280
8/12/2025	380	2/4/2025	268	8/20/2025	278		
12/9/2025	368	8/19/2025	269	12/8/2025	276		
12/9/2025	371	12/4/2025	273	3/18/2026	274		
3/18/2026	356	3/17/2026	236				
		3/17/2026	269				

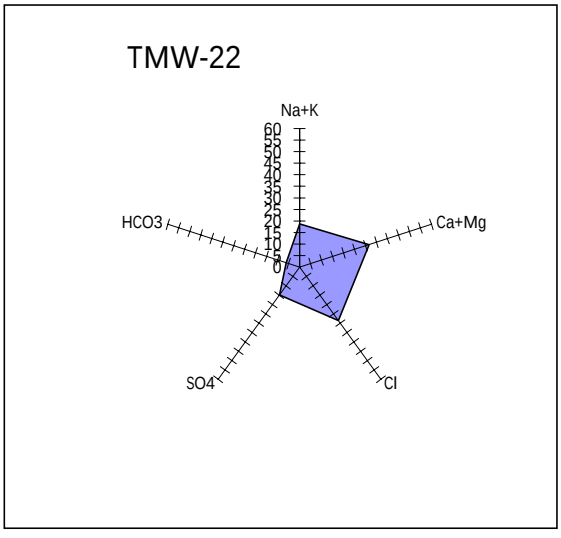


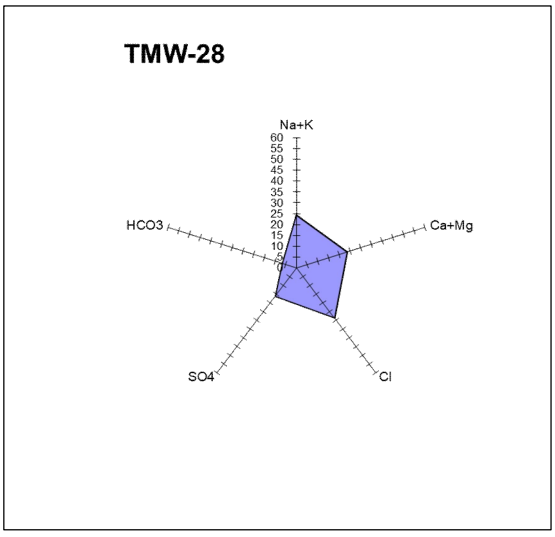
Results of the statistical Analysis		
Items	Result	Unit
Population	27	#
Arithmetic Mean	308	mg/L
Geometric Mean	305	mg/L
Median	289	mg/L
Minimum	236	mg/L
Maximum	423	mg/L
Standard Deviation	45.7	mg/L
Selected Background Concentration	300	mg/L

Radial Plots for selected monitoring wells for background chloride concentrations









Attachment – B

Soil Chloride Mass Evaluation for the 2019 Produced-Water Release Area

EXHIBIT B-2

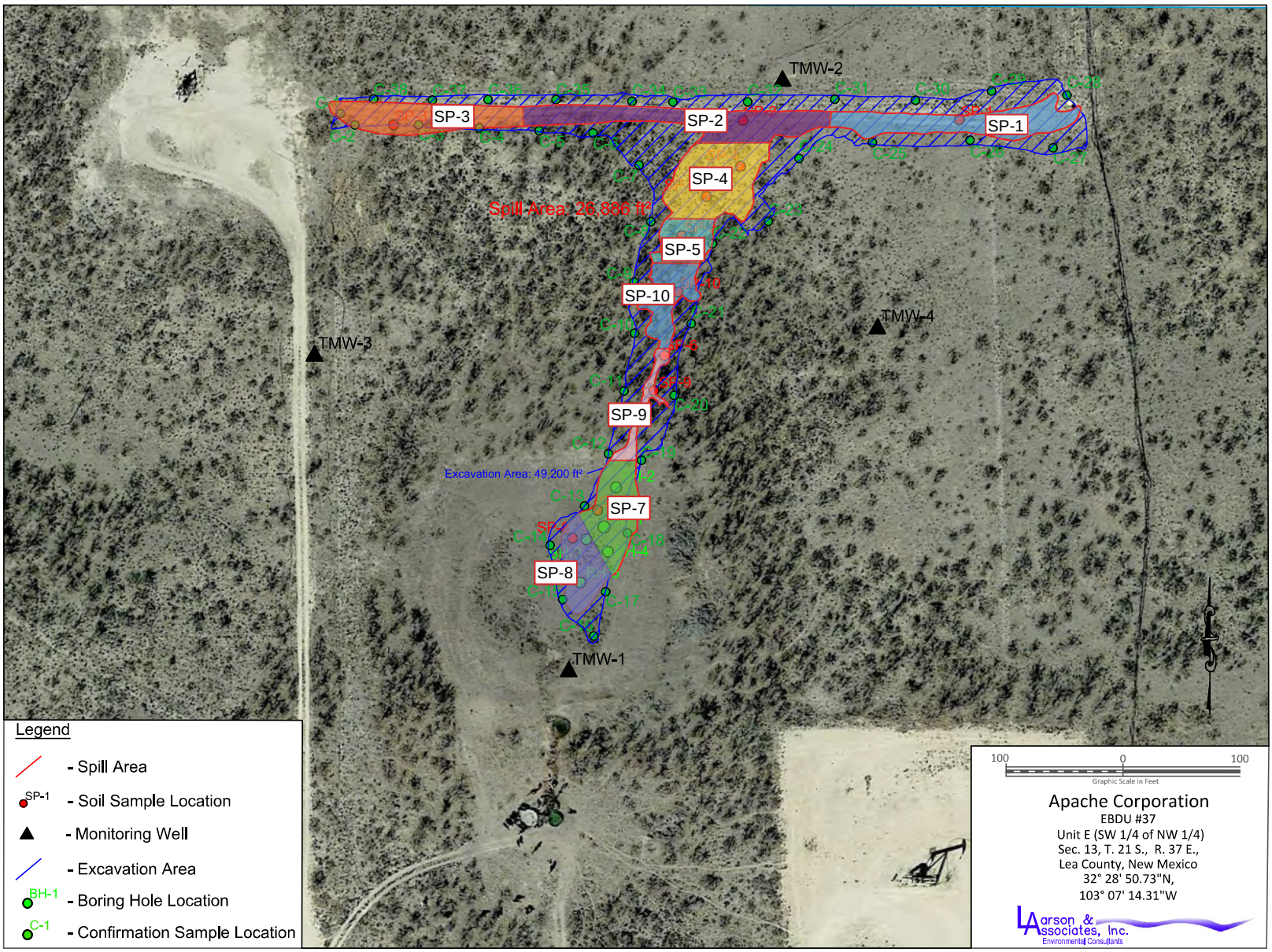


Figure 2 - Aerial Map Showing Excavation Area

EXHIBIT B-2

	Considering all depths and concentrations given by soil boring data - Only SP data was used											
#	Borings (Sections)	Area (ft2)	Thickness (ft)	Affected Volume (ft3)	Total Affected volume (ft3)	Assumed bulk density (kg/m3)	Chloride Conc. (mg/kg)	Mass of Chloride (kg)	Chloride Conc. (mg/L Soil)	Avg. Chloride Conc. (mg/L Soil)	Con. (mg/L)*Aff. Vol. (ft3)	Average Chloride Conc. In Soil (mg/L Soil)
			5	20380			16962.74	16,152	27,995		570,543,068	
1	SP1	4076	5	20380	61140		400	381	660	9,605	13,454,031	
			5	20380			96	91	158		3,228,967	
			5	23880			28800	32,133	47,531		1,135,050,171	
2	SP2	4776	5	23880	71640		1150	1,283	1,898	16,626	45,323,184	
			5	23880			272	303	449		10,719,918	
			10	36380			2720	4,623	4,489		163,312,658	
3	SP3	3638	5	18190	72760		192	163	317	2,357	5,763,976	
			5	18190			80	68	132		2,401,657	
			1	4633			17322	3,750	28,588		132,448,969	
4	SP4	4633	1	4633	64862		8757	1,896	14,453	10,332	66,958,528	
			2	9266			5143	2,227	8,488		78,649,700	
			10	46330			5128	11,100	8,463		392,101,555	
			2	3386			10100	1,598	16,669		56,441,244	
			2	3386			5200	823	8,582		29,058,858	
			2	3386			4240	671	6,998		23,694,146	
5	SP5	1693	2	3386	40632		10100	1,598	16,669	8,512	56,441,244	
			2	3386			9330	1,476	15,398		52,138,297	
			2	3386		1650	3840	608	6,338		21,458,849	8700
			2	3386			1420	225	2,344		7,935,304	
			10	16930			3532	2,794	5,829		98,688,353	
6	SP10	2076	10	20760	41520		6621	6,422	10,927	11,383	226,850,210	
			10	20760			7173	6,958	11,838		245,762,960	
			10	9100			6160	2,619	10,166		92,514,616	
7	SP9	910	5	4550	22750		5520	1,173	9,110	7,737	41,451,354	
			10	9100			2800	1,190	4,621		42,052,098	
			4	12452			3089	1,797	5,098		63,481,221	
			2	6226			5758	1,675	9,503		59,165,566	
			2	6226			6777	1,971	11,185		69,636,166	
8	SP7	3113	2	6226	112068		5998	1,745	9,899	7,435	61,631,654	
			2	6226			3748	1,090	6,186		38,512,077	
			2	6226			4026	1,171	6,644		41,368,630	
			2	6226			3781	1,100	6,240		38,851,165	
			20	62260			4482	13,038	7,397		460,541,973	
			10	21970			4240	4,352	6,998		153,739,039	
9	SP8	2197	5	10985	54925		2240	1,150	3,697	4,258	40,610,312	
			10	21970			1090	1,119	1,799		39,522,536	
Sum		27112		542297				133,000			4,681,504,255	

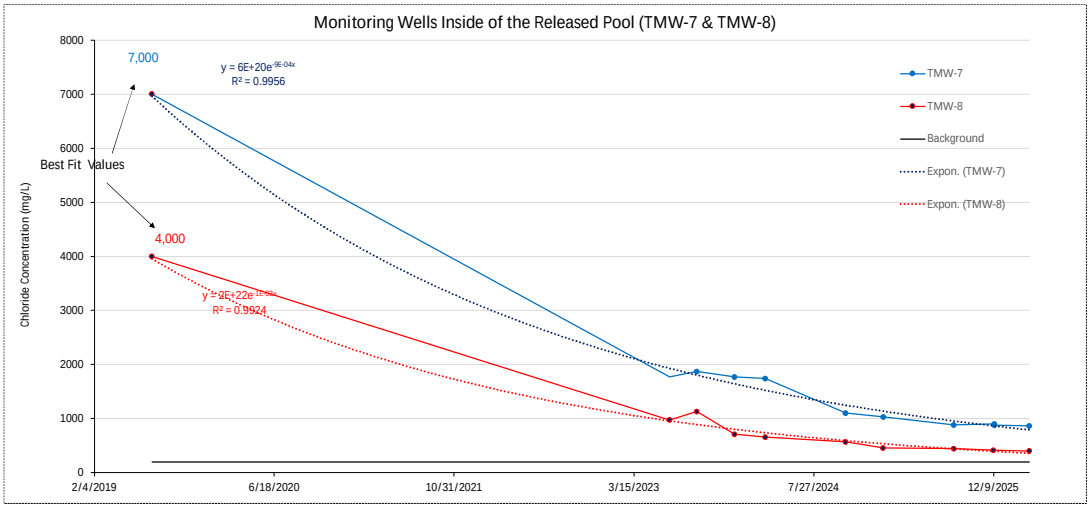
Attachment – C

Estimated Initial Groundwater Chloride Concentrations and Apparent Attenuation Rates

EXHIBIT B-2

TMW-7	
Date	Chloride (mg/L)
7/14/2019	
06/22/2023	1770
09/06/2023	1870
12/20/2023	1770
03/14/2024	1740
10/24/2024	1100
02/06/2025	1030
08/20/2025	880
12/11/2025	900
12/11/2025	874
03/18/2026	867

TMW-8	
Date	Chloride (mg/L)
7/14/2019	
06/22/2023	974
09/06/2023	1130
12/20/2023	709
03/14/2024	655
10/24/2024	570
02/05/2025	457
08/20/2025	442
12/09/2025	414
03/18/2026	402



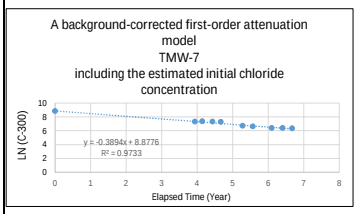
TMW-7

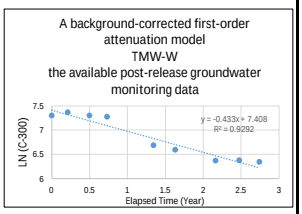
TMW-7 With Considering the Assumed Estimated Value

Date	C (mg/L)	Time (Yrs)	C-300	Ln (C-300)
7/14/2019	7000	0	6700	8.809863
06/22/2023	1770	3.939767283	1470	7.293018
09/06/2023	1870	4.147843943	1570	7.358831
12/20/2023	1770	4.435318275	1470	7.293018
03/14/2024	1740	4.668035592	1440	7.272398
10/24/2024	1100	5.281314168	800	6.684612
02/06/2025	1030	5.568788501	730	6.593045
08/20/2025	880	6.102669405	580	6.363028
12/11/2025	887	6.412046543	587	6.375025
03/18/2026	867	6.67761807	567	6.340359

TMW-7 W/O Considering the Assumed Estimated Value

Date	C (mg/L)	Time (Yrs)	C-300	Ln (C-300)
06/22/2023	1770	0	1470	7.293018
09/06/2023	1870	0.2080767	1570	7.358831
12/20/2023	1770	0.495551	1470	7.293018
03/14/2024	1740	0.7282683	1440	7.272398
10/24/2024	1100	1.3415469	800	6.684612
02/06/2025	1030	1.6290212	730	6.593045
08/20/2025	880	2.1629021	580	6.363028
12/11/2025	887	2.4722793	587	6.375025
03/18/2026	867	2.7378508	567	6.340359





Linear regression (TMW-7)

Items	Including the estimated initial chloride concentration	Available post-release groundwater monitoring data	Unit
Equation	ln(C−300)=8.8776−0.3894t	ln(C−300)=7.408−0.433t	
K:	0.3894	0.433	yr^{-1}
Half-Life ($t_{1/2}$)	1.780038984	1.600801803	years

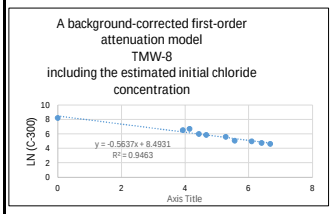
TMW-8

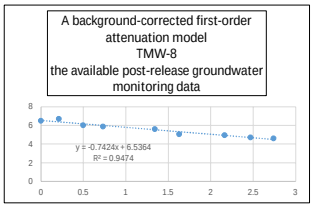
TMW-8 With Considering the Assumed Estimated Value

Date	C (mg/L)	Time (Yrs)	C-300	Ln (C-300)
7/14/2019	4000	0	3700	8.216088099
06/22/2023	974	3.9397673	674	6.513230111
09/06/2023	1130	4.1478439	830	6.721425701
12/20/2023	709	4.4353183	409	6.013715156
03/14/2024	655	4.6680356	355	5.872117789
10/24/2024	570	5.2813142	270	5.598421959
02/05/2025	457	5.5660507	157	5.056245805
08/20/2025	442	6.1026694	142	4.955827058
12/09/2025	414	6.4065708	114	4.736198448
03/18/2026	402	6.6776181	102	4.624972813

TMW-8 W/O Considering the Assumed Estimated Value

Date	C (mg/L)	Time (Yrs)	C-300	Ln (C-300)
06/22/2023	974	0	674	6.513230111
09/06/2023	1130	0.208077	830	6.721425701
12/20/2023	709	0.495551	409	6.013715156
03/14/2024	655	0.728268	355	5.872117789
10/24/2024	570	1.341547	270	5.598421959
02/05/2025	457	1.626283	157	5.056245805
08/20/2025	442	2.162902	142	4.955827058
12/09/2025	414	2.466804	114	4.736198448
03/18/2026	402	2.737851	102	4.624972813





Linear regression (TMW-8)

Items	Including the estimated initial chloride concentration	Available post-release groundwater monitoring data	Unit
Equation	ln(C−300)=8.4931−.5637t	ln(C−300)=6.5364−0.7424t	
K:	0.56	0.7424	yr^{-1}
Half-Life ($t_{1/2}$)	1.237762822	0.933657301	years

TMW-4

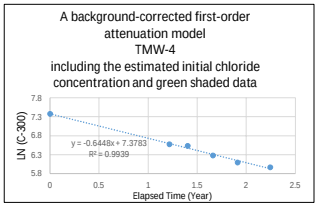
TMW-4 With Considering the Assumed Estimated Value

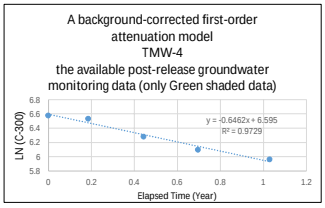
Date	C (mg/L)	Time (Yrs)	C-300	Ln (C-300)
7/14/2019	1900	0	1600	7.377759
09/30/2020	1020	1.2157722	720	6.579251
12/07/2020	987	1.4019715	687	6.532334
03/11/2021	834	1.6593647	534	6.280396
06/11/2021	745	1.9112815	445	6.098074
10/11/2021	689	2.245345	389	5.963579
12/22/2021	735	2.4424973	435	6.075346
03/29/2022	547	2.7081051	247	5.509388
05/23/2022	522	2.8587076	222	5.402677
08/16/2022	684	3.0914567	384	5.950643
12/15/2022	486	3.422782	186	5.225747
03/14/2023	703	3.6664841	403	5.998937
06/22/2023	673	3.9403067	373	5.921578
09/06/2023	625	4.1484118	325	5.783825
12/20/2023	598	4.4359255	298	5.697093
03/14/2024	580	4.6686747	280	5.63479
10/24/2024	612	5.2820372	312	5.743003
02/06/2025	569	5.5695509	269	5.594711
08/14/2025	585	6.0870756	285	5.652489
12/10/2025	559	6.4101862	259	5.556828
03/18/2026	480	6.6785323	180	5.192957

TMW-4 W/O Considering the Assumed Estimated Value

Date	C (mg/L)	Time (Yrs)	C-300	Ln (C-300)
09/30/2020	1020	0	720	6.579251212
12/07/2020	987	0.1861739	687	6.532334292
03/11/2021	834	0.4435318	534	6.280395839
06/11/2021	745	0.6954141	445	6.098074282
10/11/2021	689	1.0294319	389	5.963579344

0.5877





Linear regression (TMW-4)

Items	Including the estimated initial	Available post-release groundwater monitoring	Unit
Equation	ln(C−300)=7.3783−0.6448t	ln(C−300)=6.595−0.6462t	
K:	0.6448	0.6462	yr^{-1}
Half-Life ($t_{1/2}$)	1.074980119	1.072651161	years

Attachment – D

Groundwater Transport, Travel-Time, and Attenuation-Length Evaluation

EXHIBIT B-2

Hydraulic Conductivity (K_h) in m/s	Hydraulic Gradient (i)	Effective Porosity(n_e)	Average Linear GW Velocity (m/day)	Average Linear GW Velocity (Feet/Day)	Average Linear GW Velocity (Feet/year)	characteristic attenuation length (L_c) (Average K value = 0.59 $year^{-1}$) (ft)	Distance Ratio, X/L_c	Predicted Chloride Concentration at TMW-45 (mg/L)	Estimated Advective Travel Time from TMW-7 to TMW-45 (year)
1.00E-04	0.0018	0.3	0.05184	0.17003520	62.063	105.191	16.209	300	27
1.00E-05	0.0018	0.3	0.005184	0.01700352	6.206	10.519	162.086	300	275
1.00E-06	0.0018	0.3	0.0005184	0.00170035	0.621	1.052	1620.857	300	2747

BARRETT W. BOLE, P.G.
Midland, TX · (432) 664-3065
jbbole@sbcglobal.net

Licensed Texas Geoscientist with over 30 years of various experience including oil and gas environmental and regulatory roles, commercial real estate due diligence, soil and groundwater remediation and spill response. As a Manager at Terracon, helped open and grow Midland office from a staff of three to over 25 employees, added geotechnical and materials testing divisions, and expanded into the Lubbock, TX market with the opening of a new office. Additionally proficient in the understanding of Health and Safety operations.

EXPERIENCE

JANUARY 1995 – JUNE 1995
JUNIOR GEOLOGIST, ECUADORIAN MINERALS CORP, SCOTTSDALE, AZ.

SEPTEMBER 1995 – FEBRUARY 1998
ENVIRONMENTAL TECH/COORDINATOR, VALERO CORPORATION, HOUSTON, TX
Primary role was investigation of LPST facilities at over 100 Diamond Shamrock gasoline stations in the greater Houston Texas Region. Gained knowledge of fueling systems.

FEBRUARY 1998 – NOVEMBER 2003
ENVIRONMENTAL COORDINATOR - PROJECT MANAGER, ENSR, TGE RESOURCES, AND ESA1
Refinery investigations and remediation, industrial and commercial environmental remediation (ENSR). Commercial due diligence including Phase I ESAs (nationally) and soil/groundwater investigations and remediation (TGE Resources). Remote project manager with Phase I ESA activities throughout the United States (ESA1).

NOVEMBER 2003 – SEPTEMBER 2012
SENIOR PROJECT MANAGER - OFFICE MANAGER, TERRACON, HOUSTON AND MIDLAND, TX
Promoted from Sr. Project Manager to Office Manager. Relocated from Houston to Midland in 2004. Work included Phase I ESAs, and soil and groundwater remediation for upstream and midstream clients as well as telecommunication NEPA projects throughout West Texas. Also managed geotechnical and construction materials departments as well as environmental projects in the role of Office Manager.

SEPTEMBER 2012 – PRESENT
ENVIRONMENTAL SPECIALIST, ENVIRONMENTAL SUPERVISOR, ENVIRONMENTAL ADVISOR - U.S. ONSHORE OPERATIONS, APACHE CORPORATION, MIDLAND, TX
Various duties supporting EH&S efforts in the Permian Basin and Legacy Louisiana Remediation. Responsible for the management of spill reporting and tracking, SPCC Plans, soil and groundwater remediation, due diligence on divestitures, facility audits, Tier 2 reporting, pipelines, and other duties, as needed. Managed up to four employees as a Supervisor.

EDUCATION

2003/2007
BS/MS - GEOLOGY, SUL ROSS STATE UNIVERSITY, ALPINE, TX

LICENSES/SKILLS ACCOMPLISHMENTS

- **Professional Geologist (State of Texas License Number 753)**
- **Eagle Scout (1988)**
- **USA Swimming Official (Stroke and Turn, Starter, Deck Referee) - expired**

EXHIBIT D-1

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS, AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

PETITION FOR HEARING BEFORE A DIVISION EXAMINER REGARDING DIRECTOR'S DECISION ON ABATEMENT OF EAST BLINEBRY DRINKING UNIT #037

CASE NO. 26126

SELF-AFFIRMED STATEMENT
OF DALVA L. MOELLENBERG

1. I am attorney in fact and authorized representative of Apache Corporation, the Petitioner herein.

2. I am familiar with the Notice Letters attached hereto and caused the Notice Letters to be sent to the parties set out in the chart attached as **Exhibit D-1**.

3. **Exhibit D-1** also provides the date each Notice Letter was sent and the date received.

4. Copies of the white slips are attached as supporting documentation for proof of mailing and the information provided on **Exhibit D-1**.

5. I understand this Self-Affirmed statement will be used as written testimony in the subject cases. I affirm that my testimony above is true and correct and it is made under penalty of perjury under the laws of the State of New Mexico. My testimony is made as of the date handwritten next to my signature below.

/s/ Dalva L. Moellenberg
Dalva L. Moellenberg

June 1, 2026
Date

EXHIBIT D-1

Date Mailed	Tracking #	Business/Address	Delivery Confirmation
4/24/2026	70221670000211811922	Mr. William O. Stephens Jr c/o Kenneth Dugan 509 W. Pierce Street Carlsbad, NM 88221-2168	4/28/2026
5/07/2026	70221670000211811939	Hilcorp Energy Company 1111 Travis Street Houston, TX 77002	5/18/2026

EXHIBIT D-1

Gallagher&Kennedy

Dalva L. Moellenberg
Shareholder
Direct: (505) 989-7278
Email: dlm@gknet.com

April 24, 2026

VIA CERTIFIED U.S. MAIL AND EMAIL
Mr. William O. Stephens, Jr.
c/o Kenneth Dugan
Martin, Dugan & Martin
509 W. Pierce St.
P.O. Box 2168
Carlsbad, NM 88221-2168
kdugan@lawmdm.com

Re: ***OCD Case No. 26126 Petition and Application of Apache Corporation for a Hearing on Appeal to Contest the Division's Determination that Apache is Required to Submit an Abatement Plan, Lea County, New Mexico***

Dear Mr. Stephens,

This letter is to advise you that, pursuant to the provision of 19.15.4.8 and 19.15.30.21 NMAC, Apache Corporation ("Apache") filed its Application to contest the Oil Conservation Division's ("OCD") determination that Apache is required to submit an abatement plan pursuant to 19.15.30.11 and Subsection A of 19.15.30.14 NMAC, as stated in the "Notification of Abatement for nDHR1922141227 East Blinebry Drinkard Unit #037, Incident ID# nDRH1922141227, on April 10, 2026. A file-stamped copy of the Application is enclosed with this letter for your convenience.

This Application has been set for hearing before the OCD on June 4, 2026. Further details regarding the hearing can be found at the Oil Conservation Division Hearings website: https://www.emnrd.nm.gov/ocd/hearing-info/

You are not required to attend this hearing, but as an owner of an interest that may be affected by this Application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date. Parties who wish to appear in an adjudicatory proceeding before the OCD, under rule 19.15.14.13.B NMAC, must enter an appearance and file a pre-hearing statement at least four business days in advance of the scheduled hearing date, but no later than 5:00 p.m. MST on the Thursday prior to the scheduled hearing date, which falls on May 28, 2026. The procedural rules for filing an entry of appearance in an adjudicatory hearing are located in 19.15.4.11 NMAC and the requirements for pre-hearing statements are located at 19.15.4.13.B NMAC.

EXHIBIT D-1

Very truly yours,

GALLAGHER & KENNEDY, P.A.

By: Dalva L. Moellenberg

DLM:jek

G|K

EXHIBIT D-1

BEFORE THE OIL CONSERVATION DIVISION
NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMEMT

PETITION FOR HEARING BEFORE A DIVISION EXAMINER REGARDING DIRECTOR'S DECISION ON ABATEMENT OF EAST BLINEBRY DRINKING UNIT #037

CASE NO:

APACHE CORPORATION,

Petitioner.

PETITION AND APPLICATION FOR HEARING ON APPEAL

Pursuant to 19.15.30.21 and 19.15.4.8 NMAC, Apache Corporation ("Apache" or "Petitioner"), by and through the undersigned counsel, hereby appeals, petitions, and applies for a hearing on the regular docket on May 14, 2026 before the Oil Conservation Division ("Division" or "OCD") regarding the determination that Apache Corporation is required to submit an abatement plan pursuant to 19.15.30.11 and Subsection A of 19.15.30.14 NMAC, as stated in the "Notification of Abatement for nDHR1922141227 East Blinebry Drinkard Unit #037, Incident ID# nDRH1922141227," attached hereto as Exhibit "A". This Petition and Application is timely, as the Director's notice of action, Exhibit A, was received on March 12, 2026, and this Petition and Application was filed within 30 days of receipt of the notice, per 19.15.30.21 (C) NMAC.As support for this request, Apache states the following per 19.15.4.8(A) NMAC:

(1) Applicant's name:

Apache Corporation

(2) Applicant's attorney's address:

Dalva L. Moellenberg
Serafina Seluja
Gallagher & Kennedy, P.A.

EXHIBIT D-1

1239 Paseo de Peralta
Santa Fe, New Mexico 87501

(3) Name or general description of the common source or sources of supply or the area the order sought affects:

The area the order sought affects is all of the area covered by the notification, actions and determinations made by the Oil Conservation Division as set forth Exhibit "A."

(4) Briefly, the general nature of the order sought:

Apache Corporation seeks an order setting aside, overturning and nullifying all of the determinations and actions as stated in Exhibit "A," including but not limited to (1) that "groundwater has been impacted by Oil & Gas activity in excess of the standards outlined in 19.15.30.9 NMAC," (2) any determination, implicit or otherwise, that the cited incident is the cause of or is otherwise related to the alleged groundwater impacts and that the determination is a sufficient basis for the actions stated in Exhibit "A," (3) requiring Apache Corporation, pursuant to 19.15.30 NMAC, to submit an abatement plan pursuant to 19.15.30.11 and Subsection A of 19.15.30.14 NMAC, and (4) that Apache Corporation must submit a complete Stage 1 Abatement Plan proposal to OCD Permitting within 60 days of receipt of the letter identified as Exhibit "A."

(5) A proposed legal notice for publication:

A proposed form of legal notice is attached as Exhibit "B" hereto.

(6) Any other matter division rules or a division order requires:

To the extent required by 19.15.30.21(C), Apache Corporation states that it objects to all portions of the action stated in Exhibit "A," including the determinations and actions as described in paragraph (4) above.

WHEREFORE, Apache requests that this Petition and Application be set for hearing before an Examiner of the Oil Conservation Division at the regular docket on May 14, 2026.

Respectfully submitted,

GALLAGHER & KENNEDY, P.A.

/s/ Dalva L. Moellenberg
Dalva L. Moellenberg
Serafina I. Seluja
1239 Paseo de Peralta

EXHIBIT D-1

Santa Fe, NM 87501
DLM@gknet.com
Serafina.seluja@gknet.com

Released to Imaging: 6/1/2026 4:16:59 PM

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was mailed via USPS to the Director and also sent via e-mail to the following persons on April 10, 2026:

Albert C.S. Chang
Director Oil Conservation Division
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505
Albert.Chang@emnrd.nm.gov

Rosa Romero
Environmental Bureau Chief
Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505
RosaM.Romero@emnrd.nm.gov

Jesse Tremaine
Legal Director, Oil Conservation Division
JesseK.Tremaine@emnrd.nm.gov

Freya Tschantz
Law Clerk – OCD
Freya.Tschantz@emnrd.nm.gov
OCD.Hearings@emnrd.nm.gov

By: */s/ Dalva L. Moellenberg*
Dalva L. Moellenberg

EXHIBIT D-1

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Erin Taylor
Acting Cabinet Secretary

Ben Shelton
Deputy Cabinet Secretary

Albert C.S. Chang, Director
Oil Conservation Division

March 12, 2026

Apache Corporation
303 Veterans Airpark Ln
Midland, TX 79705

RE: Notification of Abatement for nDHR1922141227 East Blinebry Drinkard Unit #037, located in Unit letter E, Section 12, Township 21S, R37E

Dear Mr. Bole:

The New Mexico Oil Conservation Division (OCD) has reviewed Apache Corporation OGRID 873's (Apache) *Field Activity Report* submitted November 11, 2025, under application ID: 528526 for the East Blinebry Drinkard Unit (EBDU) #37, Incident ID# nDHR1922141227.

OCD has determined from the submitted report that groundwater has been impacted by Oil & Gas activity in excess of the standards outlined in 19.15.30.9 NMAC. Pursuant to 19.15.30 NMAC, OCD is requiring Apache to submit an abatement plan pursuant to 19.15.30.11 NMAC and Subsection A of 19.15.30.14 NMAC. Apache must submit a complete Stage 1 Abatement Plan proposal to OCD Permitting within 60 days of receipt of this letter. 19.15.30.13 A. NMAC. Apache may submit stage 1 and stage 2 abatement plan proposals together.

The public may view a copy of the *Field Activity Report* and the conditions online from OCD permitting under Incident ID# nDHR1922141227 at http://www.emnrd.state.nm.us/ocd/.

If Apache Corporation has any questions or concerns regarding this letter, please contact Brittany Hall at (505) 517-5333 or Brittany.Hall@emnrd.nm.gov.

Sincerely,

Rosa M Romero

Rosa Romero
Environmental Bureau Chief

Released to Imaging: 6/1/2026 4:16:59 PM

EXHIBIT D-1

EXHIBIT B

Draft Notice for Publication:

CASE No.:_____

Application and Petition of Apache Corporation for a Hearing on Appeal to Contest the Division Director's Notice of Action, Lea County, New Mexico. Applicant in the above-styled cause seeks an order setting aside, overturning and nullifying all of the determinations and actions as stated in the Director's Notice of Action including but not limited to (a) that "groundwater has been impacted by Oil & Gas activity in excess of the standards outlined in 19.15.30.9 NMAC," (b) any determination, implicit or otherwise, that the cited incident is the cause of or is otherwise related to the alleged groundwater impacts and that the determination is a sufficient basis for the actions stated in the Exhibit A, (c) requiring Apache Corporation, pursuant to 19.15.30 NMAC, to submit an abatement plan pursuant to 19.15.30.11 and Subsection A of 19.15.30.14 NMAC, and (d) that Apache Corporation must submit a complete Stage 1 Abatement Plan proposal to OCD Permitting within 60 days of receipt of the letter. This cause stems from EBDU No. 37, Incident No. nDRH1922141227, in relation to the East Blinebry Drinkard Unit #037 well, also known as "EBDU #37" ("the Well"), API No. 30-025-06556, a water injection well, located in Section 13, Township 21 South, Range 37 East, in Lea County, New Mexico. Said area is located approximately 3 miles northeast of Eunice, New Mexico. Hearing of the above-styled cause will take place on May 14, 2026, before the Oil Conservation Division. Counsel for Apache Corporation, Dalva Moellenberg and Serafina Seluja, both of GALLAGHER & KENNEDY, PA, can be reached at dlm@gknet.com and serafina.seluja@gknet.com, and at 1239 Paseo de Peralta, Santa Fe, New Mexico, 87501.

EXHIBIT D-1

Gallagher&Kennedy

Dalva L. Moellenberg
Shareholder
Direct: (505) 989-7278
Email: dlm@gknet.com

May 6, 2026

VIA CERTIFIED U.S. MAIL AND EMAIL
Hilcorp Energy Company
c/o Matt Henderson
1111 Travis Street
Houston, TX 77002
mhenderson@hilcorp.com

Re: OCD Case No. 26126 Petition and Application of Apache Corporation for a Hearing on Appeal to Contest the Division's Determination that Apache is Required to Submit an Abatement Plan, Lea County, New Mexico

Dear Mr. Henderson,

This letter is to advise you that, pursuant to the provision of 19.15.4.8 and 19.15.30.21 NMAC, Apache Corporation ("Apache") filed its Application to contest the Oil Conservation Division's ("OCD") determination that Apache is required to submit an abatement plan pursuant to 19.15.30.11 and Subsection A of 19.15.30.14 NMAC, as stated in the "Notification of Abatement for nDHR1922141227 East Blinebry Drinkard Unit #037, Incident ID# nDRH1922141227, on April 10, 2026. A file-stamped copy of the Application is enclosed with this letter for your convenience.

This Application has been set for hearing before the OCD on June 4, 2026. Further details regarding the hearing can be found at the Oil Conservation Division Hearings website: https://www.emnrd.nm.gov/ocd/hearing-info/

You are not required to attend this hearing, but as an owner of an interest that may be affected by this Application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date. Parties who wish to appear in an adjudicatory proceeding before the OCD, under rule 19.15.14.13.B NMAC, must enter an appearance and file a pre-hearing statement at least four business days in advance of the scheduled hearing date, but no later than 5:00 p.m. MST on the Thursday prior to the scheduled hearing date, which falls on May 28, 2026. The procedural rules for filing an entry of appearance in an adjudicatory hearing are located in 19.15.4.11 NMAC and the requirements for pre-hearing statements are located at 19.15.4.13.B NMAC.

EXHIBIT D-1

Respectfully,

GALLAGHER & KENNEDY, P.A.

By: 
Dalva L. Moellenberg

DLM:jek

EXHIBIT D-1

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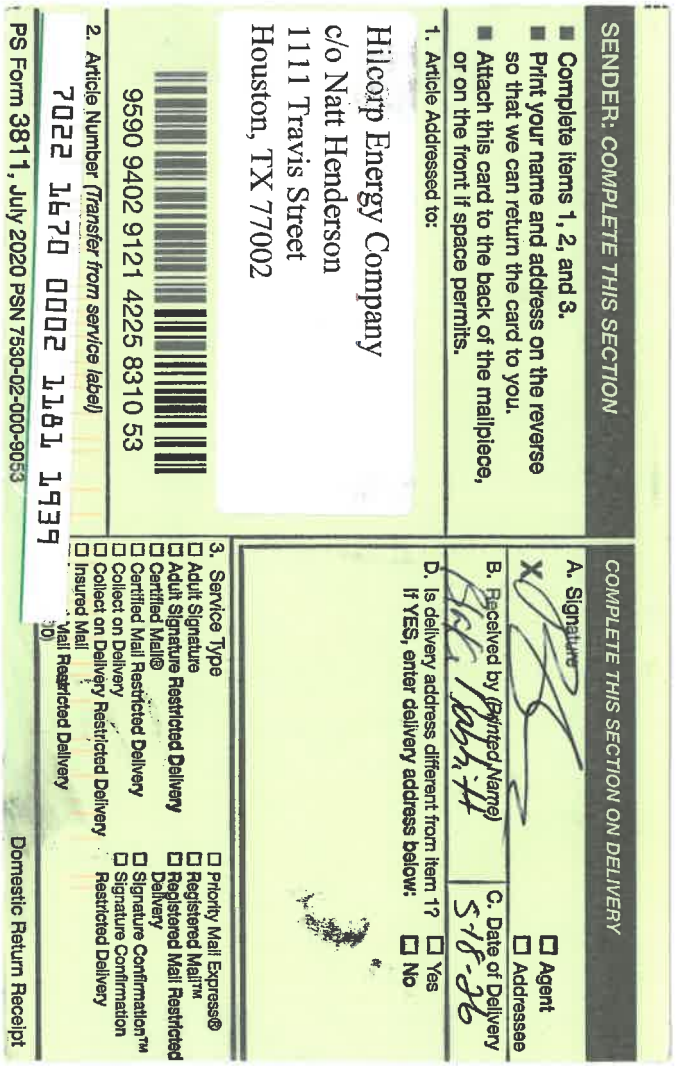
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